THE IRON AGE

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Pig Iron More Active

Large Contracts for Bars and for Line Pipe—The Attitude of the Railroads

The pig iron market is reaching a level at which an increasing number of consumers believe they can safely contract. The low prices recently named in connection with early shipment have been quoted by some producers for delivery throughout the year. Other sellers take the position that blowing out is preferable to large commitments at such prices.

At $16, at furnace, for Bessemer iron business in the Pittsburgh district has been stimulated, and at $15 for basic considerable iron that has been overhanging the market has been moved. That these figures could be shaded has been made evident by developments of the week, the opinion being general that the situation will clear up more quickly under heroic measures.

The East has led in the buying of foundry iron, transactions in the Philadelphia and New York districts and New England amounting to fully 50,000 tons. Of this pipe makers took about 10,000 tons; a stove foundry in New Jersey, 4200 tons; a machinery foundry in New England, 5000 tons, and an implement works, 5000 tons, while malleable foundries have bought moderately.

In the Central West a considerable number of gray iron and malleable foundries have been in the market, and some buying has resulted, but bids of $11.50, Birmingham, for No. 2 seemed to be necessary to meet buyers' views. One sale of 5000 tons, deliveries extending over the second half, was made at close to this basis. Chicago reports sales of malleable Bessemer, including one of 5000 tons in Wisconsin.

It is evident that consumers of foundry iron would place large orders for the balance of the year at $11.50, Birmingham, and at $15 or slightly less for No. 2 at Central Western furnace. On the other hand producers would sell freely for such delivery at 50 cents above these levels.

The decline in Bessemer pig iron has brought down Bessemer billets, which have sold at $25.50, Pittsburgh.

Buying of bars by implement manufacturers, including wagon and carriage makers and all agricultural interests, has been the most active feature of the finished material market. In the past six weeks it is estimated 300,000 tons has been taken by such buyers, and several hundred thousand tons more will be needed if present programmes for the implement output for 1911 are carried out.

Railroad buying will have much to do with determining conditions in finished lines in the second half of the year. Just now the efforts of the roads to advance freight rates is entering into their market policy. The attitude toward the advances taken by those who furnish railroad material is being made much of by certain Western lines. Some business is evidently

being held back pending the outcome of rate questions.

Car contracts by the Baltimore & Ohio and the Hawley lines are being counted on with more certainty. The latter are expected to place 8000 to 9000 cars, while 2000 or 3000 of the 20,000 or more cars under consideration by the Baltimore & Ohio are regarded as reasonably sure. Since the beginning of the year it is estimated that 80,000 cars have been ordered.

Rail orders of the week include 3000 tons for the Baltimore & Ohio and about 4500 tons in smaller lots.

Activity in structural work has shifted from the East to the Middle West, where a large amount of building and bridge work is pending. The Kentucky & Indiana bridge at Louisville is a noteworthy project on which estimates will soon be made.

Line pipe work is making great strides. One producer has closed 300 miles of 10 to 18 in. pipe for a gas line, the largest single contract in many months. The Ohio Fuel Supply Company has bought 40 miles of 20-in. pipe and will place a further contract soon. Jobbers' stocks of merchant pipe are gradually being worked off and meantime heavy new buying is not expected.

Sheet mills are, as a rule, well employed, but concessions of $2 to $3 a ton have been more common recently. Tin plate mills have been booking some good orders for the fourth quarter from can makers.

Fluctuations in Iron and Steel Costs

The question of cost of making iron and steel has assumed an importance in the past few months which it did not possess either in the period of intense activity culminating in 1907 or at the time of the break last year. Market fluctuations in future promise to have a more definite relation to cost than has been the case in the recent past. So many new features have been injected into the reckoning that it is not easy to define just what is cost. The revaluation of mineral lands in recent years, for instance, has furnished a totally new element. There has been a tendency in current thought to regard certain values as fixed, whereas it is impossible to maintain that the value of mineral lands does not fluctuate. The new feature injected is not so much a fixed value as a new conception of values. It is probably not far from correct to say that the market value of ore properties depends as much upon the market value of ore as the market value of ore depends upon the market value of ore properties. Either value, however, depends upon the position and prospects of the industry which consumes the mineral. The clearest concept of value is that which has reference to the ton of coking coal or of iron ore when it is mined, for then the ton of material stands in relation to the competition of the other districts which help to make the market. According to conditions, chiefly the size of the mineral property which makes the unit, the last ton of mineral may be mined five, 10 or 25 years later, and it is the present value of that last ton, on a compound interest basis, which should guide the decision of the owner whether he should mine a ton at present. In the iron business, however, men have not usually been influenced by such theoretical considerations when market conditions called for the closest scrutiny of costs.

Other new elements have been furnished by the rise of the open hearth steel process, which has forced a revaluation of old material, the advent of the duplex process, by-product coking, the blast furnace gas engine, and a multitude of smaller items which serve to make impossible the comparisons which could easily be made in an industry with fixed raw materials and fixed processes. In such an industry an analysis of costs of materials, wage rates and freight rates would furnish a fairly accurate index to the variation in costs from time to time.

The years 1897 and 1898 furnished the lowest prices in the history of the American iron and steel industry. During those years fluctuations were of a minor character and the lowest and highest prices done were not far from the average prices. These averages were approximately as follows, at Pittsburgh:

Bessemer pig iron	$10.15	Steel bars	.97c.
Bessemer billets	15.00	Iron bars	.97c.
Plates	1.07c.	Plain wire, base	1.15c.
Beams	1.20c.	Sheets, 28 gauge	2.00c.

The average price of beams given above, 1.20 cents is made high by the fact that the old "beam pool" controlled prices through the early part of 1897, its price being 1.55 cents, and in 1898 there was a semblance of control. In the intermediate period beams passed at one time below 1 cent a pound.

Even before our prices dropped as low as the above England and Germany were much alarmed at the prospect, but in recent years they have exhibited a notorious complacency over the advance in costs in this country. When, however, the line is drawn between the increases which have occurred through changes in physical conditions, and are therefore permanent, and the increases which have occurred merely through our prosperity, it is found that the latter greatly preponderate. Of the irremediable increases the one most often mentioned is the decreased iron content in our ores, through the partial exhaustion of the purest, while of those due to artificial conditions the most striking are the increases in freight rates and wages.

The 1898 ore book, based partly upon cargo analyses for 1897 and partly upon expectations for the 1898 season, listed 36 Mesaba ores, and the average iron content, natural state, of these ores was a trifle above 56 per cent. The average content to-day is but a trifle over 50 per cent., so that there has been a loss of approximately five units since the period of lowest prices of iron and steel. The Marquette range then showed 13 ores running above 60 per cent. iron content, natural state, while the current analysis book shows only 6. Roughly speaking, 11 tons instead of 10 tons must be mined and transported an average of nearly 1000 miles to produce an equal tonnage of pig iron, and this is an absolute loss, however the cost of mining and transporting a ton may vary. The additional cost does not end there by any means, for while the quantity of iron ore required has increased by nearly one-tenth the quantity of coke required has increased by one-fourth or more, the proportionate increase in limestone being still greater.

The industrial depression, which culminated in the low prices of 1897-8, found many operations badly positioned. Their costs were much higher than those of the best works and they promptly dropped out of the reckoning. In the 1899 boom attempts were made to refurnish some of them, but their inability to keep the pace was quickly made manifest. During the depression there was considerable new erection, so that when

in 1897 the country's total production as measured by pig iron was 5 per cent. greater than in 1890 the tonnage was made by a materially different body of producers. It is improbable that a similar shaking out at this time would disclose as important differences in fitness as was shown then. If one were able to take the producers of the 80 per cent. of the output in the early nineties which was most economically produced there would probably be found greater variations from the mean than a comparison would find in 80 per cent. of the present-day production.

The increase in production cost through natural causes is surpassed by the increases due to artificial although relatively permanent causes, these being chiefly the increased wages and higher freight rates. The railroads lately have been giving the public liberal doses of statistics to show that their wages paid have increased greatly while their rates have advanced but slightly. An illustration of this class of statistics may be had by taking Poor's statistics, which show for the fiscal year 1898, falling in the middle of the two calendar years taken for low iron and steel prices, average receipts of 0.758 cent per ton-mile, while for the fiscal year 1908 the average is 0.765 cent, the increase being just 1 per cent. Quite a different showing would be made were the comparison to cover only freight rates on coke, iron ore, pig iron and crude and finished steel. These rates have increased largely.

The average rate of wages paid in the iron and steel industry has probably increased not far from 50 per cent. The advance in common labor has been much greater than this.

In time these items of cost in making iron and steel may be reduced, but there are many who hold, on the contrary, that the advancing tendency is permanent. Whether the one or the other may prove to be true, it is certain that there is at present a very large increment of cost, as compared with 1897-8, and that if there is any reduction it can come but slowly.

On the other side there are directions in which costs of production have been reduced. Mills and furnaces are driven harder and fuel is economized. By-product coking, the dry air blast and blast furnace gas engines furnish reductions in costs, but it should be noted in passing that the introduction of none of these economies is extensive enough to bring prices down to the cost level they produce, for only a miraculous drop in consumptive demand could eliminate the capacity which is without them, nor, so great is the amount of capital required, can they be generally introduced in any small number of years.

In 1897-8 the Bessemer process was supreme, its tonnage being about six times that of the basic open hearth. To-day the basic open hearth process is distinctly in the lead, but there is no ground common to even one-half the basic open hearth capacity upon which a cost estimate can be erected. There are large tonnages produced by each of several modifications of the plain open hearth process and even through the current fluctuations in market prices of scrap their relative costs vary.

In the different steel products which have open market prices there has been in the past few years a remarkable absence of relation to cost of production, for prices have varied widely between products the cost of producing which cannot show a great variation. Some of the discrepancies at the present moment are noteworthy. Steel pipe and wire products sell at the same price, whether of open hearth or Bessemer material, whereas the billets and sheet bars show a spread approximating $2 a ton. Basic open hearth steel production has quadrupled in a decade and still commands this premium in the crude form, a fact which suggests that it has not been possible to spare as much time to a study of costs as may be required in the future.

Freight Rates on Iron and Steel

When a general advance in freight rates was under consideration two years ago it was proposed by the railroads in the territory between the Atlantic and the Mississippi to make an exception of iron and steel. An exception tariff was to have been issued, taking the principal rolled products of iron and steel out of the regular classification. So much opposition was encountered to the proposed general advance that the railroad interests decided not to force the matter, and it was indefinitely postponed.

The general advance in class rates which the railroads in this territory now have under consideration is practically the advance which was "checked in," but not made effective, two years ago. It has apparently been graduated to increase the revenues from the traffic affected about 10 per cent. The key to the rate problem north of the Potomac and Ohio rivers and east of the Mississippi is the rate between Chicago and New York. Practically all class rates for shorter distances in this territory are based, directly or indirectly, upon some percentage of the New York-Chicago rate. There are special commodity tariffs covering pig iron, billets, scrap, rails and a few other articles; but nearly all finished products of iron or steel in this territory are carried at class rates and are subject to the official classification. The principal articles of steel are carried at the fourth-class rates in less than carloads and at fifth-class in carloads. The fifth-class rate from New York to Chicago is 30 cents; and the rate from Pittsburgh to Chicago, usually 55 per cent. of the New York rates, is fixed at 18 cents. Rates from Pittsburgh to other points in the territory affected are worked out on the same percentage plan, so that a change in the key or base rate necessarily changes rates to all points.

When it was proposed two years ago to make an exception of iron and steel products in the advance then under consideration, the argument which met with favor was that iron and steel rates had been advanced the year before. About 10 years ago there was a general revision of the official classification in which the "iron list" was raised from sixth to fifth class, for carload shipments, and fifth to fourth on less than carloads. In deference to opposition, however, the roads soon after issued the "iron list" as an exception tariff, making the rates on articles in this list 10 per cent. less than the regular class rates. In the summer of 1907 this "exception tariff" was canceled, which had the effect of restoring the original advance of one class. These changes were effected without any change in the class rates themselves, by merely shifting the "iron list" from one class to the next higher.

It was understood that the leading roads which center in the Pittsburgh district did not look with fa-

vor, two years ago, on any further advance in iron and steel rates at that time, on the ground that it would tend to restrict the markets of the industries located in that district, or would tend to build up other districts like Chicago. Whether this argument will receive the same consideration at the present time is not known, as no announcement has been authorized as yet regarding iron and steel rates.

During the past 12 or 15 years there has been a very considerable advance in rates on both pig iron and finished products, taking into consideration the disappearance of rebates as well as changes in published tariffs. As late as 12 years ago the net rate on pig iron from Birmingham to Chicago was $2.85. The charge is now $4.35, an advance of a trifle more than 50 per cent. Corresponding advances may be found in the net rates on pig iron from other important producing centers. In the eighteen-nineties rolled products were carried from Pittsburgh to Chicago for a net revenue of 9 to 10 cents, compared with the 18-cent rate now in effect; and from Pittsburgh to other Western points the advance in important instances has been considerably more than 100 per cent.

The railroads have presented strong arguments in favor of an advance in rates, owing to the higher wages they are compelled to pay, as well as a general increase in operating expenses. It is evident, however, that in the present period of closer margins in the iron and steel industry, the increasing cost of transportation is destined to play an important part in the future development of the steel industry. Western roads have shown no inclination to pay freight from Pittsburgh on rails, so long as they can place their business in Chicago, and the Chicago mills have had order books filled for months ahead when Pittsburgh and Eastern mills have had so little business that instead of rails they have produced billets and specialties. Pittsburgh formerly controlled the agricultural bar trade of the West, but only one Pittsburgh mill has retained any considerable share of this important business. The building of merchant bar mills in the West has gone on at such a rate in recent years that the Chicago market maintains prices independent of freights from Pittsburgh in hard steel bars and bar iron, as well as in steel rails and in scrap. Without discussing whether conditions make a freight rate advance necessary, there is no doubt that such an advance would stimulate the production in the West of both pig iron and steel.

The Apprentice's Bond

Under the laws of many of the States, the employer in making his contract with an apprentice must himself put up a bond of equal amount to that required of the boy. Under the old common law this was not necessary, but statutory law often requires it. If it is not done, if the employer accepts a bond from a boy to assure the latter's continuation in his apprenticeship, but himself fails to give a bond to guarantee his own fulfilment of the contract, then no contract exists and a boy could legally retire from his apprenticeship and demand of his employer his bond money. In one State an investigation failed to find a single instance where a manufacturer had conformed with this statute. In recent years in this same community the bondsmen of apprentices have been sued and the amount of the bond has been recovered where apprentices had joined in a strike and had therefore violated the terms of their contract. Probably if the bondsmen had been aware of the statutory provisions they could have defied the employers. Some manufacturers have now embodied in their apprentice contract a bond form for themselves as well as one for the apprentice. There is no great hardship in carrying out this statute, for the money put up by the employer is only equal to that required of the apprentice.

The Interlaken Industrial Training School

The attention of manufacturers attending the convention of the National Association of Manufacturers at the Waldorf-Astoria, New York, last week, was attracted to an exhibit in a room adjoining the meeting hall, made by the Interlaken School of La Porte, Ind. Products of the pupils of this school were shown—hammered brass and various articles made of steel, including hammers and chisels, besides sample products of the woodworking department. What is called the "Interlaken School Movement" is headed by Dr. Edward A. Rumely, an officer of the M. Rumely Company, whose plant is at La Porte. The school was started in the fall of 1907 and now has an enrollment of 110 pupils, which will be increased to 200 next fall, when better facilities will be available. The course covers 10 years and is adapted to boys of from 8 to 18 years of age. Tuition and board are from $400 to $600 a year. Plans have been made for the erection of new buildings on a site recently selected between South Bend and La Porte, 640 acres of land being taken up. The purpose of the managers is stated to be to make this "a national model school to demonstrate and promote industrial education in the public school system." The courses include instruction in various forms of manual labor, in the use of metal-working and wood-working tools, and in farm and other outdoor work.

Dr. Rumely has canvassed the manufacturers of the country on the question of industrial training and has developed an interest in the movement by putting it forward as an effort to solve the problem arising from the dearth of skilled labor.

"A Study in Heat Transmission," by J. K. Clement and C. M. Garland, is issued as bulletin No. 40 of the Engineering Experiment Station of the University of Illinois. This bulletin is for the technical reader and will be of interest to the student and physicist as well as the designer and operator of heating or cooling apparatus of any description. The results of the experiments apply directly to the problem of increased effectiveness of heating or cooling surfaces, which is a problem at the present moment engaging the attention of engineers. A large portion of the interest in the bulletin lies in the method of experimentation. The results show that the heat transmitted through the walls of a vessel in contact with water may be increased two or three times by increasing the velocity or rate or agitation of the water. Copies of bulletin No. 40 may be obtained gratis upon application to W. F. M. Goss, Director of the Engineering Experiment Station, University of Illinois, Urbana, Illinois.

It is easy to understand why sturdy confidence is lacking, says the *Weekly Financial Review* of J. S. Bache & Co., New York. The Government is doing its best to disturb business interests. The latest attempt is the Borah resolution to investigate the steel business. The railroad bill is wriggling like a snake through the two houses and is jabbed at and stepped on at every opportunity by friends and enemies. If the present attitude toward railroads had prevailed when the country was younger, the Middle West would still be a prairie.

The National Machine Tool Builders

ROCHESTER, N. Y., May 24, 1910.—The semiannual convention of the National Machine Tool Builders opened here this morning. The attendance is large, over 50 machine tool manufacturing concerns being represented. Guests swelled the attendance to more than 125. The Executive Committee held its usual preliminary meeting on Monday, President Fred A. Geier and Secretary Charles E. Hildreth being present. No business of importance was transacted by the committee beyond arranging the details of the convention.

A feature of the routine business at the opening session this morning was the election of 21 new members, an increase, the equal of which has not been made since the early years of the association's existence. The new members are:

Adams Company, Dubuque, Ohio.
Becker Milling Machine Company, Hyde Park, Mass.
Betts Machine Company, Wilmington, Del.
Bryant Chucking Grinder Company, Springfield, Vt.
Foster Machine Company, Elkhart, Ind.
Edwin Harrington, Son & Co., Inc., Philadelphia, Pa.
Landis Tool Company, Waynesboro, Pa.
Moline Tool Company, Moline, Ill.
Morton Mfg. Company, Muskegon Heights, Mich.
New Haven Mfg. Company, New Haven, Conn.
Oesterle'n Machine Company, Cincinnati, Ohio.
Pratt & Whitney Company, New York City.
Wm. Sellers & Co., Inc., Philadelphia, Pa.
Taylor & Fenn Company, Hartford, Conn.
Universal Boring Machine Company, Hudson, Mass.
Walker Grinder Company, Worcester, Mass.
Waltham Watch Tool Company, Springfield, Mass.
W. H. Leland & Co., Worcester, Mass.
Baker Bros., Toledo, Ohio.

During this session a very interesting discussion occurred on the "Cancellation of Orders," with papers by C. Wood Walter, Cincinnati Milling Machine Company; C. A. Johnson, Gisholt Machine Company; Murray E. Shipley, Lodge & Shipley Machine Tool Company, and William B. Reid, Marshall & Huschart Machinery Company.

The various committees made their reports, including one on the "Standardization of Motors." This report is one of progress, demonstrating that the work of standardization has passed to a point which promises the early completion of a most important task.

Another interesting report was made by F. L. Eberhart of the Apprenticeship Committee, and still another was that of J. B. Doan of the Tariff Committee.

A large number of ladies are included among the guests of the association, and their entertainment began in the early afternoon under the hospitable guidance of Miss Kate Gleason of the Gleason Works of Rochester. Miss Gleason was present at the morning session and spoke briefly, welcoming the members and their guests. She was greeted with rousing cheers. In the evening she and Wm. Gleason entertained a very large party at their villa in the suburbs of the city.

The Davidson Ore Mining Company, capitalized at $250,000, will take over extensive iron ore properties in the Iron River district of the Menominee range, heretofore owned by New York State Steel Company interests. The new mining company will be operated practically as a subsidiary of the New York State Steel Company and the principal portion of the output of the mines will be shipped to that company's plant at Buffalo; only such surplus as is not required by the latter company will be marketed. The incorporators are Frederick N. Beegle, Beaver Falls, Pa.; Frederick Davidson, Pittsburgh; Louis R. Davidson, Buffalo, respectively president, vice-president and secretary of the New York State Steel Company, and Spencer Kellogg, Seymour H. Knox, John D. Larkin, Buffalo; George Davidson, New Brighton, Pa., and M. S. McDonnough, Iron River Mich.

The Ohio Engineers' Meeting

The Cincinnati meeting of the Ohio Society of Mechanical, Electrical and Steam Engineers which was held May 19 and 20 served more the purpose of a critical and technical inspection tour than a gathering for deliberations over professional papers, although there were several important ones presented. It will be recalled as one of the most enjoyable of the society's 21 gatherings.

The meeting opened on Thursday afternoon with an inspection trip taking in the plant of the Lunkenheimer Company in North Fairmount, followed by a visit to the plant of the Union Gas & Electric Company in the city proper. Special cars had been provided by the Cincinnati entertainers—L. T. Kaiser, Samuel Moyer, F. C. Bitgood, William Mittendorf, Daniel Delaney, H. D. Pownall and E. Mc Clintock—and these were used to transport the delegates to the various points of interest during the course of the meeting. The evening was devoted to papers by F. C. Bitgood of the Babcock & Wilcox Company on "Selecting a Boiler," and by Herbert Stone of the Dearborn Drug & Chemical Works on "The Scientific Method of Treating Boiler Feed Waters."

The second day was opened with a short business session occupying but a few minutes, then taking up papers on "Refrigerating Machinery and Appliances," by H. D. Pownall of the Triumph Ice Machine Company, and "Metallurgical Considerations in the Manufacture of High Pressure Valves and Fittings," by George K. Elliott of the Lunkenheimer Company. In the afternoon the plants of the Philip Carey Mfg. Company and the Triumph Electric Company were visited. At the evening session C. O. Thurston of the Kinney Mfg. Company, Boston, in a paper on "The Kinney Positive Pressure Rotary Pump" introduced some novel ideas in pump manufacture, and showed a small sectional model with which he illustrated various statements.

Saturday, the closing day, was given over entirely to inspections. The members were first taken to the new Cincinnati Water Works at California, Ohio, where they were shown the many innovations carried out in the building of this great system. In the afternoon they paid a visit to the new turbine plant of the Cincinnati Traction Company.

Along with the educational features of the Saturday jaunts, special credit is due the Committee on Entertainment for enabling several students of the University of Cincinnati and Ohio Mechanics Institute to profit by the visits and discussions. The officers of the association, who will hold over till the annual election in November, are: Oscar F. Raabe of Toledo, Ohio, president; W. C. McCracken of Columbus, William Long and Grant Miller of Toledo, vice-presidents; Frank E. Sanborn of the Ohio State University at Columbus, secretary-treasurer, and the following managers: W. E. Haswell and G. H. Gamper, Columbus; L. T. Kaiser, Cincinnati; Ira Cole, Lima; E. M. Adams, Akron, and C. T. Baker, Covington, Ky.

The very encouraging feature of the Cincinnati meeting was the adding of about 50 new members to the association roster.

Joseph Conley, contractor and furnace builder, 405 Wheeler street, Canton, Ohio, has completed one combination sheet and pair furnace, coal fired, and one annealing furnace, gas fired, for the National Rolling Mill Company, Mansfield, Ohio. He has also received a contract for a similar furnace for the Carnahan Sheet & Tin Plate Company, Canton, and from the Vitro Mfg. Company, of Pittsburgh, Pa., a contract for a heating furnace with recuperative system and a contract for recuperators for its present two smelting furnaces.

Higher Freight Rates Opposed

About 350 representatives of manufacturing and shipping interests met at the Congress Hotel, Chicago, May 17, to protest against the proposed advance in railroad freight rates. The conference was called by the Illinois Manufacturers' Association and was probably the most representative convention of shippers that has ever been held under similar circumstances. Practically the entire country was represented, a large number of the delegates being accredited from associations of manufacturers or merchants.

Statistical data were presented from the records of the Interstate Commerce Commission to show that there has been a large increase in the net revenues of the railroads as well as in their gross receipts, and the argument received practically unanimous support that under these circumstances an advance in freight rates is not needed by the carriers. The discussion was not carried on in any narrow spirit of hostility to the railroads. The argument maintained by practically all of the speakers was that there should be a full investigation of the facts by the Interstate Commerce Commission, or by some competent tribunal, to determine whether the increase in wages and in other expenses of operation makes it necessary for the railroads to charge higher rates. Resolutions were adopted which are in part as follows:

Resolved, That this convention demands that the carriers in official classification territory suspend the proposed advance in class and commodity rates and submit the question to the Interstate Commerce Commission for arbitration to determine from the facts whether any general advance in rates is reasonable or necessary; and be it further

Resolved, That pending and during such arbitration we oppose the general advance in rates as proposed by the lines in said territory; and be it further

Resolved, That a committee of 15 be appointed by the chair to carry into effect this plan for arbitration.

Failing in such conciliatory methods, said committee is empowered to take such action as will in its judgment prevent the proposed general advance in freight rates.

It is proposed by the carriers to increase class rates between New York and Chicago as follows: First class, 15 cents; second class, 13 cents; third class, 10 cents; fourth class, 5 cents; fifth class, 3 cents; sixth class, 2 cents. The advance thus proposed would be 20 per cent. of the present rates on the first, second and third classes, 15 per cent. on fourth class, 10 per cent. on fifth class and 8 per cent. on sixth class. It is further proposed by the railroads to make a general advance in all commodity tariffs as soon as the new class rates are in effect.

John E. Wilder of Chicago was chairman of the conference and E. E. Williamson of Cincinnati secretary. Of the permanent committee appointed to confer with the railroads R. F. Spencer, Peters Shoe Company, St. Louis, is chairman.

Forging Manufacturers' Testimonial to C. M. Schwab.—A dinner was given to Charles M. Schwab at the Hotel Shelburne, Atlantic City, N. J., May 20, in recognition of his efforts in organizing an association of the forging manufacturers of the country. R. A. Harman, president of the Cleveland City Forge & Iron Company, Cleveland, Ohio, was toastmaster, and remarks were made by Mr. Schwab; by Joseph P. Rogers, Philadelphia; E. G. Grace; A. D. Mixsell, and E. J. Krouse, Bethlehem Steel Company, South Bethlehem, Pa.; C. B. Porter, vice-president Sizer Forge Company, Buffalo; W. P. Barba, Midvale Steel Company, Nicetown, Pa.; H. F. Martin, general manager of sales, Pennsylvania Steel Company, Philadelphia; Bernard Pollak, Block-Pollak Iron Company, Cincinnati, and L. J. Morris, Tindel-Morris Company, Eddystone, Pa.

The Brighton Fire Brick Company, New Brighton, Pa., has added considerable space to its drying floor, which will give it an increase in capacity of 8000 fire brick per day.

Central and South American Railroads

SAN JOSE, C. A., May 2, 1910.—The frontiers of Guatemala are rapidly becoming the center of Pan-American Railroad activity. Much work is being done and new work projected by the new American syndicate, especially in Chiapas and the Oajaca Pacific regions. This, added to Salvador's Santa Ana and La Union lines and the Panama-David development for 300 miles of new road, will soon bring this much hoped for intercontinental or "Three Americas" railroad into very practical being. The latest project is for the extension to the southward for nearly another 300 miles to Antioquia, Colombia. Thence this British project takes the line across the Amazon and to the Diamantina mining region of Brazil, running thence through Paraguay, Uruguay and finally reaching Buenos Aires, Argentina, in all some 4000 miles, and thus literally making a Central South American railroad.

Colombia has granted important concessions for upwards of 1600 miles of railroad in the interior, including the Magdalena region.

Argentina has 24,000 kilometers, approximately 15,000 miles, of railroad, well over half of this amount being broad gauge. There are now also 8000 kilometers under construction. The Entre Rios has established a railroad ferry line over the Parana, some 50 miles from Buenos Aires. The Northeastern Argentina Railroad is extending to Posadas, while the Central of Paraguay, aided by the Argentine government, is building an extension to Pirapó, and Encarnacion, Concordia, Monte Caseros and the important city of Corrientes are all joined now by the Northeastern Argentine.

Once the Northeastern lines are finished, the time from Buenos Aires to Asuncion, the capital of Argentina, will be some 48 hours. The total length of the Central Argentine is 3000 miles; the Buenos Aires & Pacific is 2700 miles; the Buenos Aires Southern is nearly 3000 miles, and the Cordoba Central is nearly 2500 miles, with its extensions into Bolivia. Most of the capital placed in these railroads came from Great Britain.

Resistance of Various Pigments to Corrosion

A statement has been prepared by the Joseph Dixon Crucible Company, Jersey City, N. J., commenting on the tests of paint pigments made under the auspices of the American Society for Testing Materials and on other tests made by the American Paint Manufacturers' Association. Reference is made to the classification of the committee of the American Society for Testing Materials, dividing the pigments tested into inhibitors, indeterminates and stimulators, those in the first class being regarded as retarding corrosion to the greatest extent. The Dixon Company takes exception to classifying zinc oxide as an inhibitor while graphite is classed as a stimulator. The tests consisted in submerging pieces of polished steel in water and adding equal volumes of different pigments. At the end of a given time the pieces of steel were taken from the bottles and weighed, corrosive influence being judged by the loss of weight. These tests, it is stated, should be regarded merely as showing results under the particular circumstances described. Referring to the test fence built by the Paint Manufacturers' Association and the results with paints prepared from about 40 pigments the Dixon Company says that while the test is not concluded the zinc oxide paint failed at the end of one year's service while the graphite paint is still in perfect condition.

The Iron and Metal Markets

A Comparison of Prices

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	May25, 1910.	May18, 1910.	Apr.27, 1910.	May 26, 1909.
PIG IRON, Per Gross Ton:				
Foundry No. 2, standard, Philadelphia	*$17.00*	$17.00	$17.50	$16.25
Foundry No. 2, Southern, Cincinnati	*14.75*	14.75	15.25	14.50
Foundry No. 2, local, Chicago	*17.00*	17.00	17.25	16.50
Basic, delivered, eastern Pa.	*16.25*	16.50	17.50	15.50
Basic, Valley furnace	*15.00*	15.00	15.75	14.25
Bessemer, Pittsburgh	*16.90*	17.40	17.90	15.90
Gray forge, Pittsburgh	15.90	15.90	15.90	14.40
Lake Superior charcoal, Chicago	*18.50*	18.50	19.00	19.50
BILLETS, &c., Per Gross Ton:				
Bessemer billets, Pittsburgh	*25.50*	26.00	26.50	23.00
Forging billets, Pittsburgh	*31.00*	32.00	32.00	25.00
Open hearth billets, Philadelphia	*29.00*	29.00	30.00	24.50
Wire rods, Pittsburgh	32.00	32.00	32.00	29.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	*15.00*	15.00	16.25	14.25
Steel rails, melting, Philadelphia	*14.50*	14.50	15.75	15.25
Iron rails, Chicago	*17.50*	17.50	18.50	17.00
Iron rails, Philadelphia	*20.00*	20.00	20.50	18.50
Car wheels, Chicago	*15.50*	15.50	16.00	15.00
Car wheels, Philadelphia	*15.00*	15.00	15.50	15.00
Heavy steel scrap, Pittsburgh	*15.25*	15.00	15.75	15.50
Heavy steel scrap, Chicago	*13.50*	13.50	14.25	14.00
Heavy steel scrap, Philadelphia	*14.50*	14.50	15.75	15.25
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	1.52½	1.50	1.50	1.40
Common iron bars, Chicago	*1.47½*	1.50	1.50	1.30
Common iron bars, Pittsburgh	*1.55*	1.55	1.60	1.30
Steel bars, tidewater, New York	1.61	1.61	1.61	1.36
Steel bars, Pittsburgh	1.45	1.45	1.45	1.20
Tank plates, tidewater, New York	*1.66*	1.66	1.71	1.46
Tank Plates, Pittsburgh	*1.50*	1.50	1.55	1.30
Beams, tidewater, New York	1.66	1.66	1.66	1.46
Beams, Pittsburgh	1.50	1.50	1.50	1.30
Angles, tidewater, New York	1.66	1.66	1.66	1.46
Angles, Pittsburgh	1.50	1.50	1.50	1.30
Skelp, grooved steel, Pittsburgh	1.50	1.50	1.50	1.30
Skelp, sheared steel, Pittsburgh	1.60	1.60	1.60	1.40
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	2.40	2.40	2.40	2.20
Wire nails, Pittsburgh*	*1.80*	1.80	1.85	1.70
Cut nails, Pittsburgh	*1.80*	1.80	1.85	1.65
Barb wire, galv., Pittsburgh*	*2.10*	2.10	2.15	2.00
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	*13.00*	13.00	13.25	13.50
Electrolytic copper, New York	12.87½	12.75	12.75	13.25
Spelter, New York	*5.30*	5.30	5.60	5.20
Spelter, St. Louis	*5.15*	5.15	5.45	5.05
Lead, New York	*4.37½*	4.35	4.40	4.40
Lead, St. Louis	*4.22½*	4.20	4.25	4.30
Tin, New York	33.25	33.20	32.90	29.15
Antimony, Hallett, New York	*8.12½*	8.12½	8.25	7.75
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	$3.84	$3.84	$3.84	$3.64

* These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.50c. to 1.55c., net; I-beams over 15 in., 1.65c., net; H-beams over 8 in., 1.75c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.60c., net; angles over 6 in., 1.65c., net; angles, 3 x 3 in. and up, less than ¼ in., 1.75c., base, half extras, steel bar card; tees, 3 in. and up, 1.65c., net; zees, 3 in. and up, 1.60c., net; angles, channels and tees, under 3 in., 1.50c., base, plus 10c., half extras, steel bar card; deck beams and bulb angles, 1.80c., net; hand rail tees, 2.80c., net; checkered and corrugated plates, 2.80c., net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.50c. to 1.55c., base. Following are stipulations prescribed by manufacturers, with extras to be added to base price (per pound) of plates:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼-in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. take the price of 3-16-in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Gauges under ¼-in. to and including 3-16-in. on thinnest edge	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates), 3 ft. and over in length	.10
Complete circles, 3 ft. diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in.	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

TERMS.—Net cash 30 days.

Sheets.—Minimum prices for mill shipments on sheets in carload and larger lots, on which jobbers charge the usual advances for small lots from store, are as follows: Black annealed sheets, Nos. 3 to 8, 1.70c.; Nos. 9 and 10, 1.75c.; Nos. 11 and 12, 1.80c.; Nos. 13 and 14, 1.85c.; Nos. 15 and 16, 1.95c. Box annealed sheets, Nos. 17 and 21, 2.20c.; Nos. 22 to 24, 2.25c.; Nos. 25 and 26, 2.30c.; No. 27, 2.35c.; No. 28, 2.40c.; No. 29, 2.45c.; No. 30, 2.55c. Galvanized sheets, Nos. 13 and 14, 2.50c.; Nos. 15 and 16, 2.60c.; Nos. 17 to 21, 2.75c.; Nos. 22 to 24, 2.90c.; Nos. 25 and 26, 3.10c.; No. 27, 3.30c.; No. 28, 3.50c.; No. 29, 3.60c.; No. 30, 3.85c. Painted roofing sheets, No. 28, $1.70 per square. Galvanized roofing sheets, No. 28, $3 per square, for 2½-in. corrugations.

Wrought Pipe.—The following are the discounts on the Pittsburgh basing card on carloads of wrought pipe now in effect:

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
⅛ and ¼ in.	70	54	66	..
⅜ in.	71	57	67	53
½ in.	74	62	70	58
¾ to 6 in.	78	68	74	64
7 to 12 in.	72	57	68	53
Plugged and Reamed.				
1 to 4 in.	76	66	72	62
Extra Strong, Plain Ends.				
⅛ to ⅜ in.	63	51	59	47
½ to 4 in.	70	58	66	54
4½ to 8 in.	66	54	62	50
9, 10, 11 and 12 in.	54	42	..	..
Double Extra Strong, Plain Ends.				
¼ to 8 in.	59	48	55	44

The above steel pipe discounts are for "card weight," subject to the usual variation of 5 per cent.

Boiler Tubes.—Discounts on lap welded steel and charcoal iron boiler tubes to jobbers in carloads are as follows:

	Steel.	Iron.
1 to 1½ in.	49	43
1¾ to 2¼ in.	61	43
2½ in.	63	48
2¾ to 5 in.	60	55
6 to 13 in.	61	43

2½ in. and smaller, over 18 ft., 10 per cent. net extra.
2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads to destinations east of the Mississippi River will be sold at delivered discount for carloads lowered by two points, for lengths 22 ft. and under; longer lengths, f.o.b. Pittsburgh.

Wire Rods.—Bessemer, open hearth and chain rods, $32.

Steel Rivets.—Structural rivets, ¾-in. and larger, 2.15c., base; cone head boiler rivets, ¾-in. and larger, 2.25c., base; ⅝-in. and 11-16-in. take an advance of 15c., and ½-in. and 9-16-in. take an advance of 50c.; in lengths shorter than 1-in. also take an advance of 50c. Terms are 30 days, net cash, f.o.b. mill. The above prices are absolutely minimum on contracts for large lots, makers charging the usual advances of $2 to $3 a ton to the small trade.

The Iron and Metal Markets

Pittsburgh

PARK BUILDING, May 25, 1910.—(*By Telegraph.*)

Pig Iron.—Bessemer pig iron has reached a new low level, a Sharpsville furnace interest having sold a leading steel company 5000 tons for forward delivery at $16, at furnace, carrying a freight rate of 40c. a ton for delivery in the Youngstown district. Several small sales of Bessemer, ranging from 200 to 400 tons, made by dealers, are reported at $16 to $16.25, Valley furnace. Very little has been done in basic, and the market apparently has settled down for the time being to $15, at furnace. Foundry iron is slightly weaker, No. 2 having sold at $15, Valley furnace. Nothing has been done here in forge iron for some time. Few consumers have covered their pig iron requirements for the last half of the year, and they are watching the situation closely. It is generally accepted that prices of pig iron will not go much if any lower, and for this reason a brisk buying movement in pig iron that would bring about higher prices may start at any time. We quote Bessemer iron at $16 to $16.25; basic, $15 to $15.25; malleable Bessemer, $15.25; No. 2 foundry, $15 to $15.25, and gray forge, $15, all at Valley furnace, the freight rate to Pittsburgh being 90c. a ton.

Steel.—There has been a further decline in Bessemer steel billets and sheet and tin bars, but on open hearth steel prices are firm. We note a sale of 1000 tons of open hearth tin bars for June and July delivery at $29, maker's mill, or $30, delivered. A leading pipe interest is reported to be in the market for a round tonnage of Bessemer billets or slabs. We quote Bessemer billets at $25.50 to $26, and sheet bars, $26.50 to $27; 4 x 4 in. open hearth billets, $28 to $28.50; open hearth small billets, $29 to $29.50; open hearth sheet and tin bars, $28.50 to $29, and forging billets, $31 to $32, all f.o.b. Pittsburgh, freight to destination added.

Merchant Pipe.—The leading interest has taken a contract for 300 miles of 10 to 18 in. pipe for a gas line, this being the largest single contract for line pipe placed for a long time. Spang, Chalfant & Co., Inc., have taken a contract from the Ohio Fuel Supply Company for 40 miles of 20-in. pipe for a gas line, and the same buyer will probably place an additional tonnage of large line pipe shortly. The tone of the pipe market is decidedly firmer.

(*By Mail.*)

The low prices ruling on pig iron and several lines of finished iron and steel are not only bringing out more inquiries, but are developing a large increase in actual orders. This is notably true in line pipe of large sizes, the leading pipe interest and several of the independents having recently taken some very important contracts and as a result the market is firmer. In the past week Bessemer pig iron reached a new low level. The low prices ruling in Bessemer iron are having a sympathetic effect on Bessemer steel, prices on which are now lower than at any time for more than a year. Prices on finished iron and steel are holding up remarkably well, only slight concessions being made in the regular prices on plates, structural material, sheets and wire products. On most lines the mills are pretty well filled up for the next 60 to 90 days, and on sheets and tin plate into the third quarter.

Ferromanganese.—The market is only fairly steady, and on two recent inquiries, one for 75 tons and the other for 100 tons, $40 to $40.50, Baltimore, was quoted. A sale is reported of two cars of 50 tons for June delivery at $40.50, Baltimore, or $42.45, Pittsburgh.

Ferrosilicon.—Most consumers are covered for some time ahead, and there is little new inquiry. Prices are fairly steady, the last important sale of 50 per cent. having been made about $59, Pittsburgh.

Rods.—There is some inquiry for small lots for early shipment, but prices are showing signs of weakness, no doubt due largely to the lower prices ruling for Bessemer steel.

Skelp.—The recent heavy orders placed for large pipe for oil and gas lines have stirred up considerable inquiry for wide sizes of iron and steel plates, and the mills are figuring on more business now than for some time. For ordinary widths and gauges we quote grooved steel skelp at 1.50c. to 1.55c.; sheared steel skelp, 1.60c. to 1.65c.; grooved iron skelp, 1.80c., and sheared iron skelp, 1.90c., all f.o.b. mill, Pittsburgh.

Steel Rails.—Last week was the best the Carnegie Steel Company has had in light rails for more than a year, booking actual orders for more than 6000 tons, largely for lumber and coal interests, and is also figuring on some more nice inquiries. Orders for standard sections are coming in steadily, but they are mostly in small lots for repair work. It is worthy of note, however, that an Eastern road that was presumed to have bought some time ago its entire requirements of standard sections for this year, is now in the market for 3000 tons for quick shipment. This is taken to mean that probably other leading roads have not fully covered their requirements for this year. We quote steel axles at 1.75c. to 1.80c. and splice bars, 1.50c., at mill, Pittsburgh. Light rail prices are as follows: 8 to 10 lb., $32; 12 to 14 lb., $29; 16, 20 and 25 lb., $28; 30 and 35 lb., $27.75, and 40 to 45 lb., $27, Pittsburgh. These prices are for 250-ton lots and over, and for small lots premiums of 50c. per ton and more are being paid. We quote standard sections at $28, at mill.

Structural Material.—A feature of the market is the very low price at which some recent work has been taken, and, which it is claimed, was below actual cost to the fabricators, if they paid 1.50c. on plain material. New inquiries are fairly numerous and several large jobs are about ready to be placed. The McClintic-Marshall Construction Company has received contracts for a bridge across the Wabash for the Big Four, 1500 tons, and 2200 tons for pier sheds for the city of New Orleans. The Jones & Laughlin Steel Company has taken 800 to 900 tons for a new building in an Eastern city, and the American Bridge Company has taken upward of 3000 tons of bridge work for Western roads. While it is reported that less than 1.50c. is being done on plain material, the two local mills state that they are not going below that figure. Bids went in Tuesday on a county bridge at Oil City, Pa., 1500 tons, and this work will likely come to one of the local mills.

Plates.—The Hawley lines have placed orders for 72 locomotives, 40 for the Chicago & Alton and 32 for three or four of the other roads in its system, of which the American Locomotive Company got 40 and the Baldwin Locomotive Works 32. The same railroad interest is expected to come in the market shortly for 8000 to 9000 cars. The Pressed Steel Car Company is now turning out about 110 steel cars per day and the Standard Steel Car Company 75 to 80. Both are pretty well filled up with orders until August. Some of the smaller mills are naming 1.45c. on plates, being in position to make prompt shipments, but the larger mills, that are filled up for two or three months, are reported as adhering closely to 1.50c.

Sheets.—A moderate amount of new business is being placed, but the mills are running mostly on contracts taken some time ago, against which consumers are specifying quite freely. Concessions of $2 to $3 a ton are still being offered in prices of black and galvanized sheets for prompt shipment by two or three mills. Regular prices will be found on another page.

Tin Plate.—Conditions in this trade are active, the mills being filled up pretty well into the third quarter, and some large contracts for bright plate are now being placed by can manufacturers for delivery in the fourth quarter. Prices are very firm. We continue to quote 100-lb. cokes at $3.60 per base box, f.o.b. Pittsburgh.

Bars.—It is understood that on some recent contracts for steel bars for delivery over the last half of the year, and in certain cases up to July 1 of next year, placed by the agricultural implement makers, which were taken on the basis of 1.45c., a guarantee was given that if lower prices were made the contracts would be adjusted accordingly. Local mills rolling steel bars are filled with work for several months and the Carnegie Steel Company is arranging to roll steel bars at its Upper Union mills in this city to help out on some contracts. We note a fair demand for iron bars, but the market is only fairly steady. We quote steel bars at 1.45c. and iron bars at 1.55c., f.o.b. Pittsburgh, in large lots.

Hoops and Bands.—New orders are being booked at a fairly satisfactory rate, but are mostly in small lots. It is stated that specifications against contracts are coming in quite freely, but not as actively as some time ago. We quote steel hoops for forward delivery at 1.50c. to 1.60c., while for prompt shipment as high as 1.65c. is obtainable. Steel bands are 1.40c. to 1.50c. on contracts for forward delivery and 1.60c. to 1.65c. for reasonably prompt shipment, these carrying steel bar card extras.

Spelter.—The market has shown some weakness in the last few days. We quote prime grades of Western at 5.12½c. and 5.15c., East St. Louis, equal to 5.25c. and 5.27½c., Pittsburgh.

Spikes.—The new demand for railroad spikes does not show any improvement, still being confined to small lots for repair work. The demand for boat spikes and small railroad spikes is fairly active. We quote standard sizes of railroad spikes, 4½ x 9-16 in. and larger, at $1.60 to $1.65 for Western shipment and $1.65 to $1.70 for local trade. Boat and small railroad spikes are firm, at $1.75, base, these prices being for carloads and larger lots.

Shafting.—This material continues quite active in new demand, while jobbers and consumers are specifying freely against contracts. It is a notable fact that for the past six months or more the shafting makers have had all the business they could handle, and in some cases are back in ship-

The Iron and Metal Markets

ments. Prices are being well maintained, regular discounts being 50 per cent. off in less than carload and 55 per cent. off in carload and larger lots, delivered in base territory.

Wire Products.—Conditions in the wire trade are not very satisfactory, the new demand for wire nails and wire fencing being mostly in small lots for actual needs. This also applies to cut nails. The heavy stocks carried by jobbers are not moving out freely. The tone of the market is fairly firm, but as there is no incentive for distributers to buy ahead they will probably continue to limit their new orders largely to actual needs. Concessions are still being made, but these in most cases are not more than $1 per ton. We quote wire nails at $1.80 to $1.85 in carloads and larger lots; galvanized barb wire at $2.10 to $2.15; painted at $1.80 to $1.85; annealed fence wire, $1.60 to $1.65; galvanized, $1.90 to $1.95, and cut nails, $1.80, all f.o.b. cars, Pittsburgh, usual terms, full freight to destination added.

Merchant Pipe.—Several large inquiries for line pipe are in the market, including the Bush-Everett Syndicate proposition, which involves a heavy tonnage. The mills are pretty well filled up on line pipe. It is stated that discounts on steel pipe are being firmly maintained, but there is still unevenness in iron pipe prices in spite of the reduction of one point, or $2 a ton, made recently. Regular discounts on iron and steel pipe are printed on another page in this issue.

Boiler Tubes.—Trade in both locomotive and merchant tubes is moderate. However, several large contracts for locomotives have recently been placed, and it is expected that a large part of the tubes needed for these will come to Pittsburgh mills. Discounts are reported as being fairly well maintained.

Iron and Steel Scrap.—Heavy steel scrap is in better demand and slightly firmer. Other prices seem to be seeking a lower level. Many large consumers are not operating their plants to full capacity. There is a good deal of scrap pressing on the market, but it is not believed that prices can go much lower. Still, no improvement can be expected until the pig iron market gets better. We have again reduced prices on several lines of scrap. Dealers quote about as follows, per gross ton, for delivery at Pittsburgh or elsewhere, as noted:

Heavy steel scrap, Steubenville, Follansbee, Sharon, Monnessen and Pittsburg delivery	$15.25 to $15.50
No. 1 foundry cast	14.50 to 14.75
No. 2 foundry cast	13.00 to 13.25
Bundled sheet scrap, at point of shipment	11.00 to 11.50
Rerolling rails, Newark and Cambridge, Ohio, and Cumberland, Md.	16.50 to 16.75
No. 1 railroad malleable scrap	14.50 to 14.75
Grate bars	10.25 to 10.50
Low phosphorus melting stock	19.00 to 19.25
Iron car axles	25.00 to 25.50
Steel car axles	21.00 to 21.50
Locomotive axles	26.50 to 27.00
No. 1 busheling scrap	13.00 to 13.25
No. 2 busheling scrap	9.50 to 9.75
Old car wheels	14.50 to 14.75
Sheet bar crop ends	15.50 to 15.75
Cast iron borings	8.25 to 8.50
Machine shop turnings	9.50 to 9.75

We note sales of 1000 tons of cast iron borings for May, June and July delivery on the basis of $8.25, Pittsburgh, and 600 tons for July and August at $8.40, Pittsburgh.

Coke.—A local dealer has sold to an Eastern steel company 14,000 tons of coke per month for one year, commencing July 1, on a sliding scale basis, the contract being based on basic pig iron. The same interest has also contracted to supply a merchant blast furnace in the Central West with 6000 tons of coke per month, on a sliding scale basis, running from July. Several other contracts for furnace coke are reported to have been closed on a sliding scale basis, the coke makers preferring to take contracts in this way for extended delivery. We quote standard grades of furnace coke running under 1 per cent. in sulphur for last half of the year delivery at $1.80 to $1.85 per net ton at oven, while for prompt shipment $1.70 or lower is quoted. Standard grades of foundry coke are selling readily at $2.25 and up to $2.40 per net ton at oven to consumers. The output in the past week was about the same as the previous week, and it is evident that a further blowing out of ovens will have to take place before any improvement in the coke market can be expected.

The Pittsburgh Coal Company has leased the tenth and eleventh floors in the Henry W. Oliver Building, Pittsburgh, consisting of 96 rooms, and will move into its new quarters as soon as they are fitted up.

The Allegheny Valley Malleable Iron Company and the Standard Railway Equipment Company have removed their offices from Frick Annex to 722 Frick Building, Pittsburgh.

Philadelphia

PHILADELPHIA, PA., May 24, 1910.

Consumers are doing their best to force prices of crude materials to a lower level, but have generally been unable to get any marked concessions. A narrower range of pig iron quotations has resulted, and differentials between grades are smaller, which is taken to indicate that many sellers have reached their limit, based on present cost of production. The Eastern Pig Iron Association, which held its regular monthly meeting last week, reported the statistical position practically unchanged. It is stated that producers will further reduce the output, if the present restrictions do not prove sufficient, so as to bring production down to the level of current consumption. Out of a total of 47 furnaces in the Eastern Association, of which 36 were in blast a month ago, 31 are now active, and during the next week or so at least three more will be blown out. While there has been a trifle more business transacted in finished products, particularly in plates, other branches have been less active. Refined iron bars are a shade stronger, owing to the enforced idleness of some mills. Old material shows no movement.

Pig Iron.—The undertone of the market is a shade stronger, owing largely to the extensive inquiry, both for near future as well as extended delivery, by melters of foundry grades, although it is assumed that much of this is for the purpose of testing the position of sellers. Cast iron pipe foundries have again been the most active buyers, sales of several 1000-ton lots having been made to Delaware River foundries, both Northern and Southern iron participating. Virginia cast iron pipe makers have also taken about 3000 tons of local low grade iron. A machine tool builder has closed, it is stated, for 1600 tons for second half, the purchase being divided between several sellers. Malleable iron makers have also taken some fair lots of that grade, principally for second-half shipment. The smaller consumers of the high grades of foundry iron have made purchases of miscellaneous lots for early shipment. Standard Northern brands of No. 2 X foundry are flatly on a basis of $17, delivered in this vicinity. Virginia No. 2 X is held by the majority of producers at $14.25, furnace, equal to $17 to $17.25 delivered here, during the second and third quarter. Southern iron is firm at $12, Birmingham, for No. 2, for second-half shipment, and offers under that figure are being turned down, although for spot iron reports are current that concessions can be had. Many producers of both Northern and Virginia brands now show but a 25-cent range between No. 2 X and No. 2 plain grades. Openly the foregoing prices are being pretty firmly adhered to, but there has been some quiet buying done, and it is reported that in such cases there has been slight shading. Some forge iron buying by rolling mills has been done during the week; sales of several thousand tons, as well as a few smaller lots, are reported, and prices are now established at $15.75 to $16, delivered in this territory. Basic iron is still practically uncalled for; inquiries for 1600 tons for extended delivery and 1000 tons for early shipment have been reported. While no business has been transacted, the majority of the sellers express a willingness to accept orders at $16.25, delivered in this district, although there is little doubt that $16 would be named if the quantity and delivery were satisfactory. Low phosphorus iron has been sold in moderate lots; production and consumption of this grade being about on an even basis, prices are maintained. Quotations for standard brands, delivered in buyers' yards in this district, third quarter and in cases for more extended delivery, range as follows:

Eastern Pennsylvania, No. 2 X foundry	$17.00
Eastern Pennsylvania, No. 2 plain	$16.50 to 16.75
Virginia, No. 2 X foundry	17.00 to 17.25
Virginia, No. 2 plain	16.75 to 17.00
Gray forge	15.75 to 16.00
Basic	16.25
Standard low phosphorus	23.00 to 23.25

Ferromanganese.—Inquiries for moderate lots for extended delivery have come out in the West. Buyers in this territory, however, show little interest in the market, being pretty well covered for near future requirements. The price, while practically unchanged, is not strong, at $40.50, Baltimore, for third quarter or last half shipment.

Billets.—There has been a better sprinkling of orders, but buyers hesitate when any heavy tonnage is involved. Forging billets are more active than rolling billets, largely on business originating in the West. Mills report a good run of specifications against old orders and are fully engaged. Basic open hearth rolling billets are quoted at $29 to $30, delivered in this vicinity; forging billets, $32, Eastern mill, with the usual extras for high carbons and special sizes.

Plates.—Specifications are coming out somewhat more freely, which, together with a moderate volume of current business, has given a better tone to the market. Some further business in boat plates is pending, while mills are figur-

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ing on about 40,000 tons for Panama lock gates, bids for which will be open June 15. Eastern mills are still able to make good deliveries, and in some instances are seeking business more aggressively in distant territories. Prices are comparatively firm at 1.70c. to 1.75c. for business of an ordinary character delivered in this vicinity.

Structural Material.—There has been an absence of any new business of large size, current orders being usually of a miscellaneous character. Several good building contracts are being figured on and more work is in prospect. The Pennsylvania Railroad will, it is stated, go ahead with the widening of its main bridge over the Schuylkill River in this city. The mills are not actively engaged and prices are weak, 1.65c. to 1.70c., delivered, being open quotations for plain shapes, although there is little doubt that these figures could be shaded for desirable specifications.

Sheets.—The demand continues active and Eastern makers, who can make prompt shipments, experience no difficulties in obtaining premiums for such delivery. Mills are being operated at full capacity and more business is offered than can in some instances be taken care of to buyers' satisfaction as to delivery. The following range of prices is quoted for near future shipment: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 and 26, 3c.; No. 27, 3.10c.; No. 28, 3.20c.

Bars.—Although there has been no particular increase in the demand, some refined iron bar mills are more actively engaged, largely on orders transferred from idle mills, and prices consequently show a slight stiffening. Refined iron bars for near future delivery in this territory are now quoted at 1.52½c. to 1.57½c. Deliveries on steel bars are still very much delayed, and prices are unchanged at 1.60c., delivered here.

Coke.—The market has been somewhat quieter, although there is still considerable inquiry for furnace coke for second half shipment. Prices range from $1.65 to $1.85 per net ton, at oven, although these figures can be shaded for prompt delivery. Moderate sales of foundry coke, from carloads to a few hundred tons, are reported, and standard grades are quoted at $2.25 to $2.50 at oven, for reasonable early shipment. The following range of prices per net ton is named for delivery in this vicinity:

Connellsville furnace coke	$3.90 to $4.10
Foundry coke	4.50 to 4.75
Mountain furnace coke	3.50 to 3.70
Foundry coke	4.10 to 4.35

Old Material.—The market has been particularly quiet, transactions in many grades being practically at a standstill. Steel makers are showing no interest in the market; they would pay $14.50 for No. 1 heavy melting steel, but sellers are not disposed to do business at that level. Further weakness is shown in cast borings, owing to heavy offerings. Quotations are largely nominal, the following range of prices representing those at which it is believed that business could be done for prompt delivery in buyers' yards in this district:

No. 1 steel scrap and crops	$14.50 to $15.00
Old steel rails, rerolling	17.00 to 17.25
Low phosphorus	20.50 to 21.00
Old steel axles	20.50 to 21.50
Old iron axles	26.50 to 27.50
Old iron rails	20.00 to 20.50
Old car wheels	15.00 to 15.50
No. 1 railroad wrought	17.00 to 17.50
Wrought iron pipe	15.00 to 15.50
No. 1 forge fire	13.00 to 13.50
No. 2 light iron	8.50 to 9.00
Wrought turnings	9.50 to 10.00
Cast borings	8.00 to 8.50
Machinery cast	15.00 to 15.50
Railroad malleable	14.50 to 15.00
Grate bars	12.50 to 13.00
Stove plate	10.00 to 10.50

The offices of the Cambria Steel Company, now located in the Arcade Building, will be moved about June 1 to the Morris Building, Chestnut street above Broad street, Philadelphia.

Chicago

FISHER BUILDING, May 25, 1910.—(*By Telegraph.*)

The steel market presents many favorable indications. The contracts of the agricultural implement people for bars are estimated to run over 200,000 tons, not including harvester business, which was formerly counted as part of this tonnage. During the past year the agricultural people bought 25 to 50 per cent. more than in any former year, and most of them have contracted for larger quantities for the coming year than they have used the past year. Another favorable indication comes from the structural field. Investors who erect steel buildings are close observers of general financial conditions. During the winter and early spring they were very slow in closing contracts, and not much business was booked by the fabricators in the West. This month, however, there has been a good run of contracts for steel buildings, and estimates are pending on a much larger tonnage, as well as on large railroad contracts, which have been hanging fire for some time. Car orders placed this month are covering a weak spot in the plate market, as well as furnishing good specifications for the structural mills. The railroads, however, are very backward in their miscellaneous purchases of material and equipment and recently they have inaugurated a campaign through their purchasing departments similar to the political embargo they adopted last winter to influence legislation at Washington. Every one who calls on a railroad purchasing department is met with a demand to sign an acknowledgment that the railroads need more revenue and that higher rates would be reasonable. Manufacturers who sell to railroads are receiving by mail a flood of demands that they sign similar documents, and many of the railroad equipment foundries and manufacturers are co-operating to secure signatures from iron, steel and other companies from which they purchase material. Meantime the railroad purchasing departments are holding up their business to a considerable extent awaiting the outcome of the campaign. The movement has aroused no little irritation among business men, who think an unfair use is being made of the purchasing department by employing them as a political bureau for one purpose or another. A political embargo of this character which was maintained for a few weeks last winter had a very unfavorable influence on business conditions, but it is believed that the market is stronger now and not so likely to be affected.

Pig Iron.—Iron buyers in the Chicago market have had but little opportunity thus far to obtain Southern iron at $11.50, Birmingham, for No. 2. There has been a little business done within the past few days at that figure, but limited to spot iron or 60 to 90-day deliveries. The Southern interests are generally holding very firm at $12 for last half. There have been many good inquiries for round lots, which would be placed at $11.50, but they are still pending, and the furnaces insist that $12 is the minimum for standard brands for the last half, although this figure might be shaded on high phosphorus iron. A number of good buyers are inquiring for lots of 1000 to 2000 tons, and there have been scattering sales of smaller amounts, especially for early delivery, which amount to a fair tonnage. More activity is noted in Northern iron. A local hardware foundry has bought between 4000 and 5000 tons, the greater part of it being Northern iron and Southern analysis iron, which has been sold by a Northern furnace. Some regular Southern iron was included in the transaction, however, principally No. 1. There are several inquiries in the market for malleable Bessemer. One Wisconsin foundry has recently bought 5000 tons and another inquiry is pending for 5000 tons, besides others for smaller amounts. The agricultural implement people are placing contracts for castings for the coming year, and this has led to an effort on the part of some of the malleable foundries to purchase malleable Bessemer for the first half or first quarter of 1911 to cover their castings contracts. A considerable amount of malleable Bessemer business is still pending from foundries which did not close during the buying movement in that line last winter, and concessions from the furnaces are reported in Milwaukee territory. Buyers of Northern foundry grades in the Chicago district are generally purchasing small lots up to 500 and 1000 tons, instead of covering their full requirements for the last half. So much business has been done in this manner that the local furnaces have a considerable tonnage sold and many buyers are covered through the third quarter at current prices. The local situation is strengthened by indications that there will be a considerable increase in the requirements of malleable foundries. The following quotations are for May and June shipment, Chicago delivery:

Lake Superior charcoal	$18.50 to $19.00
Northern coke foundry, No. 1	17.50 to 18.00
Northern coke foundry, No. 2	17.00 to 17.50
Northern coke foundry, No. 3	16.50 to 17.00
Northern Scotch, No. 1	18.00 to 18.50
Southern coke, No. 1	16.10 to 16.60
Southern coke, No. 2	15.85 to 16.35
Southern coke, No. 3	15.60 to 16.10
Southern coke, No. 4	15.35 to 15.85
Southern coke, No. 1 soft	16.10 to 16.60
Southern coke, No. 2 soft	15.85 to 16.35
Southern gray forge	15.10 to 15.60
Southern mottled	14.85 to 15.35
Malleable Bessemer	17.00 to 17.50
Standard Bessemer	18.90 to 19.40
Jackson Co. and Kentucky silvery, 6%	19.90 to 20.40
Jackson Co. and Kentucky silvery, 8%	20.90 to 21.40
Jackson Co. and Kentucky silvery, 10%	21.90 to 22.40

(*By Mail.*)

Billets.—There are not many inquiries in the market at this season and the local mills have not established any price.

Rails and Track Supplies.—Orders were booked for Chicago mills last week for about 5000 tons of open hearth rails. There are many inquiries from minor Western roads for small lots of 500 to 1000 tons of Bessemer rails, on which the business is taken by Eastern mills represented here. The light rail trade is much better than a month or

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two ago and the demand for track fastenings is keeping up at the same old rate which taxes the capacity of Western mills. We quote standard railroad spikes at 1.80c. to 1.90c., base; track bolts with square nuts, 2.50c. to 2.60c., base, all in carloads, Chicago. Light rails, 40 to 45 lb., $27; 30 to 35 lb., $27.75; 16, 20 and 25 lb., $28; 12 lb., $29, Chicago.

Structural Material.—The fabricating interests had another good run of contracts last week, and the tone of the market is strengthened by the fact that about 30,000 tons of railroad bridge work is on the point of being let. The Selling Building, Portland, Ore., 903 tons, was booked by the Northwestern Bridge Company. The Bender Building, Houston, Texas, 1020 tons, was taken by the Mosher Mfg. Company, Dallas, Texas. The Lind viaduct on the Chicago, Milwaukee & Puget Sound, between Seattle and Yakima, 650 tons, was let to the Milwaukee Bridge Company. A building for the Balaklala Copper Company, Balaklala, Nev., 153 tons, went to the Minneapolis Steel & Machinery Company. The Moody Institute, Chicago, 450 tons, was let to the Joliet Bridge Company. The Stevens-Adamson Company building at Aurora, Ill., 300 tons, was let to the Morava Construction Company. The general contract for the Y. M. C. A. Building at Nashville, Tenn., has been let to a St. Louis firm, but the fabricating contract, amounting to about 300 tons, is not yet reported placed. The American Bridge Company took the contract for a head frame at Ispheming, Mich., 180 tons, for the Oliver Iron Mining Company. The plans for the Mack Building at Denver, Colo., which would have required about 500 tons of steel, have been changed to use reinforced contrete. We quote plain material from mill, 1.68c. to 1.73c., Chicago; from store, 1.90c. to 2c., Chicago.

Plates.—The car builders have not given specifications as yet on the large contracts taken recently for steel cars and the plate market is relatively quiet, car plates being the principal business in this market. We quote mill prices at 1.68c. to 1.73c., Chicago; store prices, 1.90c. to 2c., Chicago.

Sheets.—Reports continue of concessions offered by Eastern mills on both black and galvanized sheets, amounting to about $2 per ton on black and $3 on galvanized. Buyers who are particular about quality, however, are disregarding these concessions and considerable new business is being taken at the regular price in this market. We quote as follows, Chicago: No. 10 annealed, 1.93c.; No. 28 black, 2.58c.; No. 28 galvanized, 3.68c. Prices from store, Chicago, are: No. 10 blue annealed, 2.25c. to 2.35c.; No. 28 black, 3c. to 3.10c.; No. 28 galvanized, 4c. to 4.10c.

Bars.—It is now estimated by steel men that the business placed by the agricultural people for steel bars amounts to over 200,000 tons. Last year the implement people ran all the way from 25 to 50 per cent. over their requirements in former years, and their contracts for the coming year amount, in most cases, to a little larger tonnage than they bought last year. Trouble over specifications will begin in the near future and in some cases has commenced already as implement men, who have specified for shipment in July, find that on some sizes the rolling schedules of the mills are full until November. When the specifications have all come in from the plow people the casual buyer of bars will have a long search to find a mill that will take business for this year's delivery. The larger buyers of bars are all acting on advice given them by the mills to specify several months ahead on odd sizes and sections, and thus give the mills an opportunity to make longer runs on each size, instead of submitting chopped up specifications each month. The mills find that it costs them $2 to $3 per ton more to fill a small order with a long list of sizes and sections, and buyers of this class are not easily reconciled to the situation, many of them apparently thinking that the mills are discriminating against the small buyer when in fact it is merely tardy recognition of actual expense of operating the mills. The rail stock mills are getting 1.55c. to 1.60c. for concrete bars in ordinary quantities, but on larger lots would make a minimum price of 1.50c. Bar iron is a little weaker, reflecting the recent decline in scrap and the light volume of new business. Subject to the usual delay in delivery of soft steel bars, we quote as follows: Soft steel bars, 1.63c. to 1.68c.; bar iron, 1.47½c. to 1.52½c.; hard steel bars rolled from old rails, 1.50c. to 1.60c., all Chicago.

Rods and Wire.—The mills are receiving an average run of new business and specifications. The fence manufacturers are generally covered to July 1, but will be in the market next month with contract for their fall requirements. The jobbing trade in nails and wire is running steady, and not much is heard in the West of concessions in prices, which are reported made by Eastern independent mills. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.83c.; wire nails, 2.03c.; painted barb wire, 2.03c.; galvanized, 2.33c., all Chicago.

Merchant Steel.—There is a good demand from store for practically all lines of merchant steel and iron, owing to the fact that the bar mills are covered so far ahead. Refined bar iron from store is in good demand, especially the higher grades. The agricultural implement manufacturers have not completed their contracting season with the mills for their special lines of steel, but the business done is very satisfactory.

Cast Iron Pipe.—While no large municipal lettings are reported, there is a fair run of orders from smaller cities and towns. Steger, Ill., has bought 400 tons of water pipe from the United States Cast Iron Pipe & Foundry Company, and Bradford, Ohio, has bought 300 tons from the same interest. The gas companies in Western cities are putting a lot of pipe in the ground and are specifying freely on their contracts. The railroad demand for culvert pipe is light. The advance in freight rates west of the Mississippi has caused a considerable loss to the pipe foundries on contracts they had taken at delivered prices. Before making these contracts they had been assured by railroad officials that there would be no advance in rates. It was formerly the custom of the railroads to protect the foundries by giving ample notice, or delaying new tariffs until pending contracts were completed, but this custom is no longer followed. On current business we quote, per net ton, Chicago, as follows: Water pipe, 4-in., $28.50; 6 to 12 in., $27.50; 16-in. and up, $26.50, with $1 extra for gas pipe.

Old Metals.—There is a fair demand for copper and other metals, but limited to current consupmtion or near deliveries. Tin fluctuates within a narrow range in the controlling speculative market, but without any material change in the Chicago jobbing price. The inside price on spelter, quoted to large consumers, is a little stronger, but has not changed the Chicago price quoted to casual buyers. There is a fair consumption of old metals among the foundries in this territory, the demand being especially good from those engaged in automobile work. We quote Chicago prices as follows: Casting copper, 12⅞c.; lake, 13⅛c., in carloads, for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, car lots, 33¾c.; small lots, 35c.; lead, desilverized, 4.25c. to 4.30c., for 50-ton lots; corroding, 4.50c. to 4.55c., for 50-ton lots; in carloads, 2½c. per 100 lb. higher; spelter, 5.30c. to 5.35c.; Cookson's antimony, 10⅜c., and other grades, 9¾c. to 10¼c.; sheet zinc is $7.50, f.o.b. La Salle, in carloads of 600-lb. casks. On old metals we quote: Copper wire, crucible shapes, 13c.; copper bottoms, 11c.; copper clips, 12¾c.; red brass, 12c.; yellow brass, 9½c.; light brass, 7c.; lead pipe, 4¼c.; zinc, 4.40c.; pewter, No. 1, 24c.; tin foil, 26c.; block tin pipe, 30c.

Old Material.—While the market is down to a very low level since the slump of a month ago, prices are holding steady and buyers seem to be showing more interest in the bargains offered. Some steel scrap was beginning to move East recently and the local mills which figure on needing about all the steel scrap that comes into this market have been buying again. The rolling mills are not active buyers of wrought grades of material, but are taking what comes into the market at present figures. The foundries are fairly steady buyers of cast scrap as well as malleable. The private offerings by railroads which precipitated the slump last month are no longer heard of and this may be the reason for steadier conditions in the market. The usual lists are coming out from Western roads and the Chicago, Burlington & Quincy offers this week a miscellaneous lot amounting to something over 4000 tons. Prices in the main are practically unchanged, some dealers reporting the market a little stronger while others do not recognize much change in conditions. Following prices are per gross ton, delivered, Chicago:

Old iron rails	$17.50 to $18.00
Old steel rails, rerolling	17.00 to 17.50
Old steel rails, less than 3 ft.	15.00 to 15.50
Relaying rails, standard sections, subject to inspection	24.00 to 25.00
Old car wheels	15.50 to 16.00
Heavy melting steel scrap	13.50 to 14.00
Frogs, switches and guards, cut apart	13.50 to 14.00
Shoveling steel	13.00 to 13.50

The following quotations are per net ton:

Iron angles and splice bars	$15.00 to $15.50
Iron car axles	20.00 to 20.50
Steel car axles	20.00 to 20.50
No. 1 railroad wrought	12.75 to 13.25
No. 2 railroad wrought	11.75 to 12.25
Springs, knuckles and couplers	12.50 to 13.00
Locomotive tires, smooth	17.50 to 18.00
No. 1 dealers' forge	11.00 to 11.50
Steel axle turnings	9.50 to 10.00
Machine shop turnings	8.00 to 8.50
Cast and mixed borings	5.00 to 5.50
No. 1 busheling	10.50 to 11.00
No. 2 busheling	8.00 to 8.50
No. 1 boilers, cut to sheets and rings	9.50 to 10.00
No. 1 cast scrap	13.00 to 13.50
Stove plate and light cast scrap	11.00 to 11.50
Railroad malleable	12.50 to 13.00
Agricultural malleable	11.50 to 12.00
Pipes and flues	9.50 to 10.00

W. A. Ahrens, representing the C. C. & E. P. Townsend Company and Cumberland Steel Company as sales agent, has removed from 163 State street to the National Life Building, 159 La Salle street, Chicago.

The Iron and Metal Markets

Cincinnati

CINCINNATI, OHIO, May 25, 1910.

The week has been productive of increased interest in pig iron and some finished lines, but the old material markets are lifeless. Coke consumers are beginning to take an interest in last half needs. Large furnace interests seem to have better control of the situation and have adopted a firmer stand with melters, whose idea of the market is 50c. or more per ton lower. As a consequence the week has seen some buying delayed.

Pig Iron.—In foundry grades a considerable volume of business has been transacted during the week. The prices most heard, $11.50, Birmingham, for No. 2, and $15, Ironton, for Northern No. 2, have narrowed down to spot delivery with opportunities considerably restricted at those prices. The largest inquiry is for foundry iron and comes from a stove manufacturer in Ohio, who wants about 2800 tons, 400 per month, beginning June, for the balance of the year. Some No. 2 soft, about 2000 tons, is wanted by a melter in St. Louis territory. A large sanitary manufacturer is said to have bought a considerable tonnage for delivery to a southern plant. A northern Indiana manufacturer is credited with a purchase of about 5000 tons, the larger part foundry, most of which was Southern, and went at around $11.50 for delivery over the last half. Some silvery was also contained in this purchase. Malleable is also an interesting item and 400 to 500 tons is wanted by a Louisville manufacturer of implements. A large interest with several plants is getting prices on the same for delivery to its northern Ohio branch. A local user of malleable bought 300 tons for shipment over the next 60 days at $15.25, Ironton. It is reported here that a St. Louis interest which has been seeking some basic for some time at a price approximately $17, delivered St. Louis, has taken 5000 tons at $17.50, corresponding to $15, Ironton. Deliveries are understood to be for last half. A central Ohio steel maker is asking for prices on 750 to 1000 tons of low phosphorus iron for delivery during the last quarter. The largest pipe interest is reported to be seeking a considerable tonnage of No. 3, No. 4 and forge for one of its eastern plants. Low grades continue scarce and all three grades mentioned are practically the same price, $11 to $11.25, Birmingham. One seller here has an offer averaging $11 for 2600 tons of those grades and cannot fill it. There is little movement in high silicon irons; the Ohio product is now on a basis of about $18.50 for 8 per cent., with some heavy accumulations. It is stated unofficially that one of the Jackson County furnaces will soon go on ferrosilicon. Southern producers seem to have a better understanding and the price is more nearly on a $12 basis for No. 2 than for several weeks. A week ago at least three interests were charged with making an $11.50 or better price for early delivery. Now two of these are announced to be firm at $12 and $12.50 minimum is asked by several Alabama producers. One of the largest Alabama furnaces is quoting $12, but limiting deliveries at that to the third quarter, and a Northern interest is quoting $15, Ironton, in the same way. For prompt delivery and over the next four or five months, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 foundry	$15.25 to $15.75
Southern coke, No. 2 foundry	14.75 to 15.25
Southern coke, No. 3 foundry	14.50 to 14.75
Southern coke, No. 4 foundry	14.25 to 14.50
Southern coke, No. 1 soft	15.25 to 15.75
Southern coke, No. 2 soft	14.75 to 15.25
Southern gray forge	14.25
Ohio silvery, 8 per cent. silicon	19.70
Lake Superior coke, No. 1	16.70 to 17.20
Lake Superior coke, No. 2	16.20 to 16.70
Lake Superior coke, No. 3	15.70 to 16.20
Standard Southern car wheel	25.25 to 25.75
Lake Superior car wheel	22.25 to 22.75

(By Mail.)

Coke.—There is a little better feeling in the coke trade and shipments on contract are improving somewhat. The dearth of new contracts covering last half requirements leads sellers to figure that the next five or six weeks will develop considerable buying. Connellsville foundry grades are selling at a wide range, from $2.15 to $2.50 for spot delivery, and contracts are written all the way from $2.40 to $2.75. On Connellsville furnace coke the spot price ranges from $1.65 to $1.80 and on contract, $1.80 to $2. Wise County furnace grades are quotable at $1.75 to $2 for spot shipment; there is no quotable flat price on contract. Foundry grades are selling at $2.25 to $2.50 spot and contract. Pocahontas brands of furnace coke are quotable at $1.85 to $1.90 for spot and $1.90 to $2 for forward delivery. Pocahontas foundry cokes are selling at about the same prices as Wise County brands.

Finished Material.—There is no change in prices, and business is taken at current quotations over the entire year. Leading interests are quoting 1.45c. and 1.50c., Pittsburgh, on steel bars and on shapes and plates, 1.50c. to 1.55c. Little or no new business requiring structural material is coming out, and the situation is doubtless influenced by the strike of the erection men, who are trying for 60c. an hour as against the present price of 50c. A few of the large concerns having unfinished work on hand are paying the 60c. demanded, but no general agreement has been reached by the trade. Twisted steel bars for concrete work are active and are selling at 2c. for ¾-in. and larger. Steel bars out of stock are bringing 1.90c. Warehousing continues active. Interest among the larger fabricating concerns centers now on the plans for the Kentucky and Indiana bridge at Louisville, for which figures are in preparation.

Old Material.—A further weakening in the scrap markets is to be noted. The large dealers are buying constantly, and most of them bid on the numerous railroad lists out. Awards on some stocks of railroads in Chicago territory are still in abeyance. The strongest item in this market is relaying rails, and these are held at around $24 for 56 lb. and up. Mills are showing no interest in melting steel, although reports received by the dealers show that they are increasing in activity and preparing for busier times. As an inducement to open negotiations with the mills some dealers are offering heavy melting steel at $11.50, f.o.b. Cincinnati. Borings and turnings are a little weaker and malleable scrap is very dull. The larger dealers assert that prices are likely to go still lower. For delivery in buyers' yards, Cincinnati and southern Ohio, we quote nominal prices as follows:

No. 1 railroad wrought, net ton	$12.00 to $13.00
Cast borings, net ton	5.50 to 6.50
Heavy melting steel scrap, gross ton	11.50 to 12.50
Steel turnings, net ton	6.50 to 7.50
No. 1 cast scrap, net ton	12.00 to 13.00
Burnt scrap, net ton	9.00 to 10.00
Old iron axles, net ton	16.00 to 17.00
Old iron rails, gross ton	17.50 to 18.00
Old steel rails, short, gross ton	15.00 to 15.50
Old steel rails, long, gross ton	15.00 to 15.50
Relaying rails, 56 lb. and up, gross ton	23.00 to 24.00
Old car wheels, gross ton	13.00 to 13.50
Low phosphorus scrap, gross ton	16.00 to 16.50

Cleveland

CLEVELAND, OHIO, May 24, 1910.

Iron Ore.—The situation has improved somewhat in that a few of the merchant furnaces that have been holding back on shipments are now willing to take their ore. The movement down the lakes is fair for this time of the year, but there are not enough cargoes to keep busy all of the boats that are in commission. No inquiries are coming out. Ore firms are standing firm on prices. We quote as follows: Old Range Bessemer, $5; Mesaba Bessemer, $4.75; Old Range non-Bessemer, $4.20; Mesaba non-Bessemer, $4.

Pig Iron.—The market shows more activity, both in the tonnage sold and in the volume of inquiries, than for several weeks. The blowing out of a number of furnaces and the probability that others will go out has evidently caused consumers to feel that the bottom of the market has been reached. It is too early as yet to determine whether the inquiries, which are mostly for foundry iron, will result in a general buying movement for the last half delivery. Buyers appear to be looking for very low prices, and although furnace interests are becoming more anxious to take on last half tonnage, several declare that they refuse to make the present minimum quotations. Southern producers, it is reported, have taken a portion of a large stove manufacturer's inquiry at $11.75, Birmingham, for No. 2. This would make a delivered price of $15.85, or slightly below the Valley furnace quotations. An inquiry from Erie, Pa., is for 4000 to 5000 tons of No. 2 foundry for the last half. A local seller is figuring on two other inquiries for round lots of foundry iron and one for a good tonnage of malleable, and reports sales during the week in small lots aggregating about 2000 tons. Another interest reports sales of about 5000 tons of foundry iron for early shipment in New York, western Pennsylvania and for Eastern shipment. A northern Ohio stove manufacturer has bought 750 tons of Southern foundry iron for early shipment. In addition to the larger inquiries mentioned, several have come out for last half foundry iron in lots of 500 tons and under. Prices are about stationary, $15, Valley furnace being the minimum quotation for No. 2 foundry for early shipment and $15 to $15.25 for the last half. Corrigan, McKinley & Co., who were delayed in starting their new Cleveland furnace, announce that it will be blown in to-morrow. For delivery until July 1 we quote, delivered, Cleveland, as follows:

Bessemer	$17.40
Northern foundry, No. 1	$16.50 to 16.75
Northern foundry, No. 2	16.00 to 16.25
Northern foundry, No. 3	15.50 to 16.00
Gray forge	15.90
Southern foundry, No. 2	15.85 to 16.35
Jackson Co. silvery, 8 per cent. silicon	21.05 to 21.55

Coke.—Some contracts for foundry coke are being closed, but a large share of the consumers are following the plan of

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buying spot foundry coke in one or two carload lots. There is no activity in furnace grades. Prices remain about stationary. We quote standard Connellsville furnace coke at $1.70 to $1.80 per net ton at oven, for spot shipment, and $1.80 to $2 on contract. Connellsville 72-hr. foundry coke is held at $2.25 to $2.30 for spot shipment and $2.40 to $2.50 on contract.

Finished Iron and Steel.—Inquiries are improving and the sentiment is better. One mill agency reports that during the past few days it has protected contractors on an aggregate of 9500 tons in structural shapes and plates, mostly for bridge and viaduct work for which bids are about to be submitted. Actual orders include 800 tons of 70-lb. rails, together with track fastenings, for the Chicago, Lake Shore & South Bend Railroad for an extension, taken by the Illinois Steel Company, and 1000 tons of steel piling for the cofferdam for the new Cherry street bridge in Toledo, Ohio, taken by the Carnegie Steel Company. The general run of specifications is fairly good. Mill agencies report the closing up of additional contracts for steel bars with implement makers and other consumers. Prices of steel bars are very firm at 1.45c., Pittsburgh. There is a good demand for rerolled bars for reinforcing work and mills are getting the same prices for these as for soft steel bars. The demand for plates is fairly active and, while 1.50c., Pittsburgh, is the usual price for round lots, mill agencies report no trouble in getting 1.55c., Pittsburgh, for small lots for quick delivery. Two inquiries are pending from Ohio shops for about 3000 tons of tank plates for early delivery for specific work. The demand for structural material is quite satisfactory. Prices are firm at 1.55c., Pittsburgh, and prompt deliveries can be secured. Several pending contracts will be placed in a few days. The only large new inquiry is for 1000 tons for the John Hartness Brown Building addition, Cleveland. The outlook in the lake shipbuilding industry shows an improvement as the result of some new inquiries for freight boats, on which builders are figuring. The demand for sheets continues rather light and a number of the smaller mills can make immediate shipment. Prices are weak, the usual concession being about $2 a ton on black and $3 a ton on galvanized sheets. The demand for iron bars continues light and prices are somewhat irregular. We quote iron bars at 1.45c., at mill. Jobbers report a good warehouse business in nearly all lines.

Old Material.—The market shows a little more activity among dealers, some of whom have been buying steel scrap during the week to cover on contracts. The decline in prices has stopped. The feeling is somewhat better among dealers, who think that the bottom has been reached. Consumers continue to show very little interest in the market and few sales to the mills are reported. Dealers report that they are securing very little scrap for their yards from country dealers, who are holding on for better prices. Prices are unchanged. Dealers quote, per gross ton, f.o.b. Cleveland, as follows:

Old steel rails	$15.50 to $16.00
Old iron rails	17.50 to 18.00
Steel car axles	22.00 to 22.50
Heavy melting steel	13.75 to 14.25
Old car wheels	15.00 to 15.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	13.00 to 13.50
Railroad malleable	14.50 to 15.00
Light bundled sheet scrap	10.00 to 10.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$21.50 to $22.00
Cast borings	7.00 to 7.25
Iron and steel turnings and drillings	8.00 to 8.50
Steel axle turnings	10.50 to 11.00
No. 1 busheling	12.00 to 12.50
No. 1 railroad wrought	14.50 to 14.75
No. 1 cast	12.75 to 13.25
Stove plate	11.00 to 11.50
Bundled tin scrap	11.00 to 11.50

Birmingham

BIRMINGHAM, ALA., May 23, 1910.

Pig Iron.—This market is more active than at the time of last report and quotations on a basis of $12, Birmingham, are being maintained. As has been the case for some weeks, certain brands are available at delivered prices lower than those represented by the $12 Birmingham schedule owing to the advantage in freight rate, the difference in some cases being 50c. per ton, but it has been definitely stated that such figures would be accepted only for prompt shipments and that the iron available was of such analysis that a concession from the established price could hardly be claimed. The aggregate of sales during the past week is fairly attractive. A leading merchant interest reports 5000 tons for last half delivery sold at $12, Birmingham; a leading producing interest reports 1500 tons for the last half sold at $12; another producing interest reports 1000 tons for shipment extending into the last half at $12, and still another producer reports lots of 600 and 300 tons each for comparatively early delivery at $12. In none of the transactions reported has resale iron been involved, and it is noted that the movement from warrant yards has recently been very light. The melters who have held up shipments against high priced contracts have made no effort to dispose of their purchases at present prices and merchant interests are apparently satisfied to withhold their iron from the market. The movement from furnace yards is reported in excess of the daily output, but figures as to the aggregate accumulation on such yards are not available. The production was reduced during the week and is now represented by 14 active stacks, making approximately 70,000 tons per month. Repairs to all idle plants are under way more or less, although no dates have been fixed for the resumption of operations. It is understood that at least three stacks now idle and formerly operated on foundry grades will be blown in on basic, but preparations are being made for the operation of one stack that has not been in blast for some years.

Cast Iron Pipe.—It is understood that the purchase of a round tonnage of water pipe is now being considered, and that the award will probably be made public during the coming week, but with this exception comparatively small lots are expected to be the principal considerations for some time to come. The aggregate business placed, however, continues to be satisfactory, and in the absence of evidence to the contrary we quote prices as being maintained. Authorized quotations on water pipe are as follows per net ton, f.o.b. cars here: 4 to 6 in., $24; 8 to 12 in., $23; over 12-in., average $22, with $1 per ton extra for gas pipe.

Old Material.—A larger aggregate is reported as sold in the week just ended than in the week previous, and the inquiry has improved considerably. Comparatively small lots of wrought and steel scrap are reported sold at fairly satisfactory prices, but there is yet no demand for light cast and stove plate. Dealers are adhering to asking prices as follows, per gross ton, f.o.b. cars here:

Old iron axles	$17.00 to $17.50
Old iron rails	13.00 to 13.50
Old steel axles	16.50 to 17.00
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	9.50 to 10.00
No. 1 country wrought	9.00 to 9.50
No. 2 country wrought	8.50 to 9.00
No. 1 machinery	10.50 to 11.00
No. 1 steel	9.50 to 10.00
Tram car wheels	10.00 to 10.50
Standard car wheels	11.50 to 12.00
Light cast and stove plate	7.50 to 8.00

No. 1 furnace of the Alabama Consolidated Coal & Iron Company, at Gadsden, Ala., and the only stack in blast at that plant, has been blown out for relining.

Buffalo

BUFFALO, N. Y., May 24, 1910.

Pig Iron.—Inquiry the past week has been larger than for a corresponding length of time for some months past and of a more general character. The steady increase for the past few days indicates a change in sentiment among buyers in respect to the near approach of firmer prices. The aggregate of business placed, however, was not as large as during the previous week, as offers which until recently might have been of interest to furnacemen are, in many instances, not now considered as being satisfactory. Contracts are pending for about 18,000 tons, principally foundry grades and malleable, from territory tributary to Buffalo furnaces. Shipments from furnaces are now going forward on contracts at a rate greatly in excess of the daily production. The quotable schedule of prices remains about the same as for last week, as follows, per gross ton, f.o.b. Buffalo, for current and third quarter deliveries:

No. 1 X foundry	$16.50 to $16.75
No. 2 X foundry	16.00 to 16.50
No. 2 plain	16.00 to 16.25
No. 3 foundry	15.75 to 16.00
Gray forge	15.50 to 16.00
Malleable	16.00 to 16.75
Bessemer	17.25 to 18.00
Basic	16.00 to 16.75
Charcoal	19.25 to 19.75

Finished Iron and Steel.—The week has shown continued improvement in inquiry in general lines from miscellaneous manufacturing sources, especially for steel bars and plates, also increased inquiry for sheets, both black and galvanized, with a good volume of orders placed. A number of large steel bar inquiries are pending amounting to several thousand tons. Nothing better than 1.45c., Pittsburgh, is being done, however, even for large tonnages, current orders bringing 1.50c. On structural shapes and plates the leading interest and most others are rigidly maintaining a minimum of 1.55c., Pittsburgh. The implement people in Canada are beginning to feel the market for bars, and there is a good inquiry for plates for Canadian export. Contract

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was awarded this week for construction work on the water works filtration plant at Niagara Falls to the Norwood Engineering Company and sublet to the Henry P. Burgard Company, Buffalo, which will take about 100 tons of reinforcing bars. A lot of 700 tons of bridge material is under negotiation on an inquiry from the interior of the State. Bids are being received this week for structural steel for the Solvay Process Company's new building at Detroit, involving several hundred tons. The contract for the 400 tons of steel for the 700-ft. viaduct to be erected by the Solvay Process Company near Syracuse, in connection with its plant there, has been awarded to the Phœnix Iron Company.

Old Material.—The situation is practically unchanged from last week, with a very small aggregate of transactions in any line. Steel mills as a rule have heavy stocks and are taking in only moderate shipments on contracts, and dealers are making no effort to add to their stocks, producers not caring to sell at current prices. We quote as follows per gross ton, f.o.b. Buffalo, prices being unchanged and largely nominal:

Heavy melting steel	$13.50 to $14.00
Low phosphorus steel	18.50 to 19.00
No. 1 railroad wrought	15.50 to 16.00
No. 1 railroad and machinery cast scrap	14.50 to 15.00
Old steel axles	18.00 to 18.50
Old iron axles	22.75 to 23.25
Old car wheels	15.00 to 15.50
Railroad malleable	15.00 to 15.50
Boiler plate	12.00 to 12.50
Locomotive grate bars	11.50 to 12.00
Pipe	11.50 to 12.00
Wrought iron and soft steel turnings	7.25 to 7.75
Clean cast borings	6.00 to 6.50
No. 1 busheling scrap	12.50 to 13.00

The German Iron Market

BERLIN, May 12, 1910.

The quiet tendency has grown more pronounced. While the works are well employed in most branches, the volume of new business coming in, particularly from the home market, is light. The price situation has also begun to feel more distinctly the changed international position. On the Düsseldorf Exchange the fortnightly trading in iron products last Friday brought out the first break in quotations since the upward movement began last summer. This, however, was confined to thin sheets, which were quoted at 137.50 to 142.50 marks, as compared with the previous price of 140 to 145 marks. It was also mentioned that some of the mills in the Siegerland region were offering sheets at still lower prices than those just quoted. The weakness in old material, referred to in previous letters, found striking expression at an auction of old supplies at Essen yesterday. Old rails brought prices ranging from $1 to $3 a ton lower than at the previous auction of last October. The supplies of scrap have been increasing. The agitation for an organization in this section of the trade has continued and is apparently making progress.

The stock market's view of the market situation at home and abroad is not unfavorable. The weekly summaries of *The Iron Age*, which are regularly cabled to Germany, have been making a bad impression in the iron trade itself for some weeks, but stock operators noted with satisfaction in last week's report that some furnaces have been blown out. They argue that this means that the Americans prefer to meet existing conditions of overproduction by curtailing their output rather than by competing for new markets in other countries. Under this view of the case, German investors are still willing to buy home iron shares at existing prices, and even to bid them up moderately.

The production of pig iron is keeping up well to the high pace set in March. The make in April amounted to 1,202,000 metric tons, which gives a daily production just a little less than for March. The shipments of the Steel Syndicate in April of rails, structural shapes and billets amounted to 415,449 tons. This is a drop of 182,900 tons from the exceptional movement of March, but it is 50,780 tons more than in April, 1909. The shipments of rails in April were about 6000 tons less than a year ago.

The ore market shows undiminished firmness. Orders are coming in regularly and shipments to the furnaces are keeping well up to the high water mark. After the imports of foreign ores in February and March had shown lighter figures than last year, the movement in April scored a big gain. Imports amounted to 990,200 tons, which compares with 599,878 tons in April, 1909. Some of the other trade figures may be inserted at this place. Exports of pig iron reached 62,000 tons, against 38,178 tons in April, 1909; ingots, blooms and billets, 57,122 tons, against 37,714 tons; beams, 45,925 tons, against 25,566 tons.

The lockout in the building trade continues to affect certain sections of the market seriously. The bar trade has already been pretty hard hit. While the price agreement between the mills appears to be holding pretty well, dealers are selling bars at lower prices—some as low as 108 marks—and this is making it difficult for the mills to get orders at their price of 110 marks. Of course the lockout is also making itself more and more sensibly felt in the trade in structural shapes. The mills are running in part for stock. New home business is exceedingly slow in coming in, and the export trade has also slackened up. It appears that the trade in ingots, blooms and billets is still doing pretty well. Consumers who order for the September quarter are mostly calling for larger amounts than hitherto, but they are somewhat slower in coming forward than usual.

According to an Austrian newspaper, four representatives of Krupps were in Hungary several days ago examining ground at Hunyad with a view to establishing a great cannon and general manufacturing plant. The aim, it is said, is to supply the Hungarian and lower Balkan markets from that point. This news has been received with considerable skepticism in Germany.

The latest news from the Belgian market indicates that the downward movement of prices has grown more general and pronounced. Manufacturers of steel, it is said, have been able to hold their prices pretty firmly, but manufacturers of finished products have been compelled to make one cut after the other. Orders for bars are light and prices continue to weaken. Pig iron has lost another franc.

St. Louis

ST. LOUIS, MO., May 23, 1910.

Coke.—Some sales agencies report an improvement in the demand, while others fail to note any change from the quiet market which has prevailed for some weeks. A leading house sold 2500 tons of foundry coke for shipment over the last half, and reports an inquiry pending for about 2000 tons; another house reports sale of 10 cars for immediate shipment. Others mention being in receipt of a fairly large number of inquiries for small lots. Prices hold steady at $2.35 for prompt and $2.50 for contract, 72-hour standard Connellsville foundry, per net ton, f.o.b. oven.

Pig Iron.—There appears to be some indication of an increased interest in the pig iron market, though mostly for the purpose of learning the status of prices for future delivery, even as far ahead as first quarter of 1911. Leading brokers state that local large consumers are rather heavily stocked, for the most part. An inquiry is reported for 2000 tons of analysis iron by a local manufacturer, shipment either prompt or over the last half. Other inquiries mentioned are for 600 tons of high silicon, 600 tons of No. 2 Southern and 300 tons of No. 2 Southern, all for shipment over the last half. Some difficulty is experienced in obtaining specifications on prior contracts. While it is believed that resale iron is not now a disturbing factor, some furnaces are soliciting business in so urgent a manner that it warrants the supposition that possibly firm offers of less than the recognized going price might be accepted, since it is still a buyer's market.

Lead, Spelter, Etc.—Lead is steady and quiet at 4.20c.; spelter firmer and dull at 5.20c., East St. Louis. Zinc ore is higher and very firm at $42 per ton, Joplin, base. Tin is up 12½c. per 100 lb.; antimony remains the same; copper unchanged. The demand for finished metals, though slightly better than the previous week, is still ruling quiet.

Old Material.—The only item on the list for which there is a real demand from other than dealers is relaying rails, which are scarce and urgently wanted. What little movement there is in other lines is principally in steel scrap. There were no railroad offerings the past week. Leading dealers are inclined to believe that a hand-to-mouth demand will prevail until July 1. We quote dealers' prices as follows, per gross ton, f.o.b. St. Louis:

Old iron rails	$15.00 to $15.50
Old steel rails, rerolling	15.00 to 15.50
Old steel rails, less than 3 ft	13.50 to 14.00
Relaying rails, standard sections, subject to inspection	26.00 to 26.50
Old car wheels	15.00 to 15.50
Heavy melting steel scrap	13.50 to 14.00
Frogs, switches and guards, cut apart	13.50 to 14.00

The following quotations are per net ton:

Iron fish plates	$14.00 to $14.50
Iron car axles	21.00 to 21.50
Steel car axles	19.50 to 20.00
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	12.50 to 13.00
Railway springs	12.00 to 12.50
Locomotive tires, smooth	16.50 to 17.00
No. 1 dealers' forge	11.00 to 11.50
Mixed borings	6.50 to 7.00
No. 1 busheling	11.50 to 12.00
No. 1 boilers, cut to sheets and rings	9.50 to 10.00
No. 1 cast scrap	12.00 to 12.50
Stove plate and light cast scrap	9.50 to 10.00
Railroad malleable	11.25 to 11.75
Agricultural malleable	10.00 to 10.50
Pipes and flues	9.25 to 9.75
Railroad sheet and tank scrap	8.50 to 9.00
Railroad grate bars	9.50 to 10.00
Machine shop turnings	9.50 to 10.00

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The Chillicothe Foundry & Machine Company, Chillicothe, Mo., has been incorporated; capital stock, $15,000; incorporators, Charles L. Waite, F. B. Wheeler, L. C. Allen and others.

The Railway Steam & Air Coupler Mfg. Company, Kansas City, Mo., has been incorporated; capital stock, $100,000; incorporators, Luella and Thomas Carence, E. W. Sumpton and others.

The Cooper Machinery Company, St. Louis, has been incorporated; capital stock, $12,000; incorporators, Wm. H. Cooper, Walter O. Williamson and Louis O. Goodrich.

The Economy Pump & Mfg. Company, St. Louis, has been incorporated; capital stock, $25,000; incorporators, Hugh L. Branstetler, Geo. W. Cockley and Arthur L. Burns. To manufacture portable pumps, &c.

The Larimore Novelty Works, Springfield, Ill., has been incorporated, to engage in a general sheet metal business; capital, $5000; incorporators, T. D. Parkhill, J. W. Larimore and H. L. Jones.

The plant of the A. Kilpatrick & Sons Foundry Company, at Twelfth and Howard streets, was destroyed by fire last week; loss estimated at $7000.

It is reported that the Metallurgical Company of America contemplates the erection of a plant in the suburbs of this city, which will result in the removal of the St. Louis branch of the National Lead Works.

St. Louis figures prominently in the manufacture of wire cloth. It has over $350,000 invested in this industry and the annual output exceeds $650,000 in value.

New York

NEW YORK, May 25, 1910.

Pig Iron.—Two of the larger inquiries pending one week ago have been closed, a textile manufacturer in New England taking 5000 tons, and an implement works in New York State practically the same tonnage. Deliveries in both cases include June, but are for the most part in the second half of the year. New inquiry includes 1000 tons in one case and 1200 tons in another in the New York district. Buying for a soil pipe company for two Eastern plants is reported to amount to 2000 to 3000 tons, the original inquiries on this account amounting to from 4000 to 5000 tons. Cast iron pipe works are in the market, but this is not new inquiry, as the same buyers have been seeking to buy at a price for some weeks. Inquiries for several thousand tons for New Jersey foundries are still pending. A New Jersey stove foundry has closed for 4200 tons. Eastern Pennsylvania furnaces are holding to $16, at furnace, as minimum for No. 2 X, and some have been unwilling to sell at this price. Most producers, in fact, prefer not to take contracts for large amounts running through the year. Some buying of malleable Bessemer is on hand, but the ideas of consumers are still considerably lower than those of sellers. However, in eastern Pennsylvania some malleable Bessemer has been taken in the past week, in one case 1200 tons. No real buying movement can be noticed yet, and consumers are for the most part seeking bargains. On Buffalo iron the $1 rate by canal is not yet available, $1.10 being the lowest reported thus far. We quote Northern iron at tidewater for delivery in the next three months as follows: No. 1, $17.25 to $17.50; No. 2 X, $17 to $17.25; No. 2 plain, $16.75 to $17. Southern iron is quoted at $16.75 to $17 for No. 1 and at $16.25 to 16.50 for No. 2.

Steel Rails.—Business is chiefly in small lots, though there are intimations of larger requirements that will figure in the market a little later. The Carnegie Steel Company has sold 3000 tons to the B. & O. and 850 tons to the Carter Construction Company. In the Chicago district 2500 tons is reported closed, while the Colorado and Tennessee mills have taken 500 tons each, the former lot being for the Salt Lake & Ogden Railroad Company.

Ferroalloys.—There have been a few sales of ferrosilicon at about $60, Pittsburgh. The market seems to be getting a little stronger and some sellers declare that they will not take that price. Very little ferromanganese is being asked for.

Finished Iron and Steel.—The prices on steel bars and shafting are particularly firm. Steel bar deliveries from mill are still very slow, averaging between three and four months. Bars out of stock, New York, bring about 1.90c. The large number of cars on order and the several ships to be built in the East will require a very considerable tonnage in plates, and while the business will not come into this territory it has had the effect of stiffening the price in this market. The center of interest, so far as structural material propositions is concerned, has shifted from New York to the Middle West. The only notable contracts for New York City placed during the past week were for the New York Post-Graduate Medical School, 1000 tons, taken by the American Bridge Company, and two apartment houses for which the Eastern Steel Company will furnish 1800 tons. Fabricators have been invited by S. Borchardt to inspect the plans and specifications of a 12-story apartment house to be erected at Broadway and Ninety-eighth street and submit bids; the tonnage to be required is not stated. Important contracts closed for buildings outside of New York include the Bromo-Seltzer tower building, Baltimore, 1500 tons, awarded the Baltimore Bridge Company; the Spring Valley School in San Francisco, 250 tons, taken by a local concern; the Moody Institute dormitory, Chicago, 400 tons, taken by the Joliet Bridge Company; the Jenkins Arcade, Pittsburgh, 300 tons, taken by the American Bridge Company, and the California shops of the Pullman Company, 300 tons, awarded the Pacific Rolling Mills, San Francisco. Most interesting among contracts still to be placed are a foundry for the General Electric Company at Erie, Pa., for which about 5000 tons will be required; an 800-ton building for the Solvay Process Company at Detroit, and a 2000-ton building for the Firestone Tire Company; little additional bridge material has been placed by the railroads. There is no decision yet on 7000 tons for the Pennsylvania Lines West. A bridge of 550 tons for the Colorado Southern has been given the Wisconsin Bridge & Iron Company; Miller's Ferry bridge at Dallas, Texas, has gone to Stepp Brothers, St. Louis; the Toledo-Masillon Company got 450 tons from the Toledo & Ohio Central; the Wisconsin Bridge Company got 650 tons for a viaduct for the Chicago, Milwaukee & St. Paul; a trolley viaduct at Springfield, Ill., 1000 tons, was taken by the McClintic-Marshall Construction Company, and 300 tons for bridges at Farmington, Conn., was placed by the New York, New Haven & Hartford. Quotations are unchanged: Plain structural material and plates, 1.66c.; smaller lots, 1.71c.; steel bars, 1.61c., and bar iron, 1.50c. to 1.55c., all New York.

Cast Iron Pipe.—Although public lettings are few, the general demand for small quantities of pipe is somewhat better and sales offices are quite busy in attending to business of this character. While the aggregate might well be larger, the prospect is rather encouraging, as inquiries are steadily growing. The market is steady, with quotations continued at $25.50 to $26 per net ton, tidewater, for carload lots of 6 in.

Old Material.—Dealers appear to have reached a point below which they are not disposed to quote prices. While the figures printed last week were nominal, they still represent the views of the leading sellers in this market and indicate a basing price. Business is exceedingly dull, the only transactions now occurring being forced through the importunity or anxiety of the seller and not as a result of interest shown by the buyer. Inquiries are almost wholly lacking. We repeat quotations per gross ton, New York and vicinity, as follows:

Rerolling rails	$12.50 to $13.00
Old girder and T rails for melting	12.00 to 12.50
Heavy melting steel scrap	12.00 to 12.50
Relaying rails	20.00 to 21.00
Standard hammered iron car axles	22.50 to 23.00
Old steel car axles	18.00 to 18.50
No. 1 railroad wrought	14.00 to 14.50
Wrought iron track scrap	12.50 to 13.00
No. 1 yard wrought, long	12.50 to 13.00
No. 1 yard wrought, short	12.00 to 12.50
Light iron	6.00 to 6.50
Cast borings	7.00 to 7.50
Wrought turnings	8.00 to 8.50
Wrought pipe	12.00 to 12.50
Old car wheels	12.50 to 13.00
No. 1 heavy cast, broken up	12.50 to 13.00
Stove plate	9.50 to 10.00
Locomotive grate bars	9.50 to 10.00
Malleable cast	12.00 to 12.50

Construction enterprise is now active in Canada. Public works in the new towns that are springing up all over the West and in the expanding old towns and cities in both the East and West are absorbing millions of dollars. Railroad construction, bridge building and the building of steel structures of all kinds are also calling for large expenditures. American contractors have secured much of this work. Their Canadian competitors are protesting against the admission of machinery and other material which the Americans use in their business.

Howson & Howson, counselors at law and solicitors of patents, have removed to the Liberty Tower, 55 Liberty street, corner of Nassau street, New York City.

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Metal Market

NEW YORK, May 25, 1910.

THE WEEK'S PRICES

Cents Per Pound.

	Copper.			Lead.		Spelter.	
May.	Lake.	Electrolytic.	Tin.	New York.	St. Louis.	New York.	St. Louis.
19	13.12½	13.00	33.30	4.35	4.20	5.30	5.15
20	13.12½	13.00	33.30	4.35	4.20	5.30	5.15
21	13.12½	13.00	....	4.35	4.20	5.30	5.15
23	13.00	12.87½	33.25	4.37½	4.22½	5.30	5.15
24	13.00	12.87½	33.20	4.37½	4.22½	5.30	5.15
25	13.00	12.87½	33.25	4.37½	4.22½	5.30	5.15

The market in some metals has improved slightly. Copper is weaker than it was last week. Spelter has strengthened in tone. There has been some selling in pig tin and lead. The price of lead is a little stronger.

Copper.—There are so many divergent opinions on copper and the sellers seem to be so out of harmony that it is hard to predict what a buying movement of any size would bring about. It is apparent that there is price cutting, or rather offers to cut prices, as there is little buying and the quotations which most of the large producers make are practically nominal. On May 19 the market strengthened slightly and prices were advanced. These advanced quotations have been firmly held by some of the large producers, but it is evident that there are some good sized offerings of resale copper and the disposition of some holders to invite bargaining by asking bidders to make an offer indicates that the metal can be had at less than the price quoted by the leading interest, which is 13c. for electrolytic and 13.12½c. for lake. It is the opinion of many people who are close to the situation that the real market is 12.87½c. for electrolytic and 13c. for lake. Casting copper is fairly strong and various prices are quoted on it. It can be had, however, for 12.75c. In London to-day the copper market closed slightly weaker. Spot copper was sold for £56 8s. 3d. and futures brought £57 9s. 6d. The sales amounted to 400 tons of spot and 500 tons of futures.

Pig Tin.—There has been a slight improvement in the pig tin market, although the price has fallen off somewhat. There was a Banca sale to-day and it was rumored yesterday that some fairly large sales in London went to indicate that attempts were being made to send the price up. If such was the case the attempt failed, as the Banca offerings brought a price equal to 33c., c.i.f. New York. This is 20 points lower than the closing price in New York yesterday. It is known that good quantities of pig tin are being consumed, but the buying is so slight that it seems highly probable that a very large consumer has been shipping to dealers direct. The shipments from the Straits this month have been decidedly small, the arrivals so far amounting to 1930 tons and it is not expected that any more cargoes will arrive before the month is over. There are 1715 tons afloat. The London market closed to-day with spot tin selling at £150 12s. 6d. and futures at £151 17s. 6d. The sales were 100 tons of spot and 400 tons of futures. The market was reported fairly steady.

Lead.—A better demand exists for lead and in consequence the price advanced 2½ points yesterday. This advance was made by the outside interests, which continue to rule the market. It is stated that most of the lead that has been sold during the last week has been used for special projects and the general manufacturing industries continue to be but poor buyers. The price of lead in New York is 4.37½c. and in St. Louis, 4.22½c.

Tin Plates.—Tin plates are in fair supply and the demand continues good. The quotation for 100 lb. coke plates is $3.84, New York. The price of tin plates at Swansea, Wales, remains unchanged at 13s. 3d.

Spelter.—The nominal price of spelter remains unchanged. It is apparent that the recent action of the producers in advancing quotations, which was made with an idea of drawing consumers into the market under the impression that further advances were to follow, has failed to bring any response. There were a number of good inquiries out before the advance and those inquiring have promptly withdrawn and have given it out that they are not in a hurry for the metal. The New York market is quoted at 5.30c. and St. Louis, 5.15c. From all accounts these prices are being held firmly.

Old Metals.—The market is firmer, but dealers' selling prices are unchanged, as follows:

	Cents.
Copper, heavy cut and crucible	12.25 to 12.50
Copper, heavy and wire	12.00 to 12.25
Copper, light and bottoms	11.00 to 11.25
Brass, heavy	8.50 to 8.75
Brass, light	7.00 to 7.25
Heavy machine composition	11.50 to 11.75
Clean brass turnings	7.75 to 8.25
Composition turnings	9.75 to 10.00
Lead, heavy	4.05 to 4.20
Lead, tea	3.80 to 3.95
Zinc scrap	4.25 to 4.50

Antimony.—The price for Hungarian grades of antimony has advanced five points, but this is largely because the resale offerings have been taken up and as yet quotations on that grade have not got back to their normal standing, as compared with the price asked for the better known grades. In the latter class of the metal quotations are unchanged. Hallett's is 12½c. and Cookson's 8.37½c. per pound.

Iron and Industrial Stocks

NEW YORK, May 25, 1910.

Interest in the stock market has greatly diminished and transactions have been dwindling from day to day. Meanwhile prices continue fairly firm, with fluctuations confined to narrow limits. The range on active iron and industrial stocks from Thursday of last week to Tuesday of this week was as follows:

Can. com	9⅝- 10	Railway Spr., pref.	102½-102¾
Can. pref	73⅜- 74½	Republic, com	34⅜- 35¼
Car & Fdry, com	61½- 62½	Republic, pref	97½- 98½
Car & Fdry, pref	115	Sloss, com	75
Steel Foundries	55 - 56¼	Pipe, com	21⅞- 22¾
Colorado Fuel	38 - 38⅞	Pipe, pref	72¼- 74
General Electric	150¼-151	U. S. Steel, com	82¾- 85
Gr. N. ore cert	63 - 64	U. S. Steel, pref	117¾-118¾
Int. Harv., com	96½- 99¾	Westinghouse Elec.	64¼- 65
Int. Harv., pref	120½-122½	Am. Ship, com	83¼- 83½
Int. Pump, com	48½- 49⅝	Chi. Pneu. Tool	43¼- 44½
Int. Pump, pref	85 - 85½	Cambria Steel	47¼- 48
Locomotive, com	48 - 49¾	Lake Sup. Corp	23⅝- 24
Locomotive, pref	108¼-110	Pa. Steel, pref	108
Nat. En. & St. com	20½	Warwick	10½
Pressed St., com	38⅝- 39¾	Crucible St., com	13 - 13¾
Pressed St., pref	98½- 99¼	Crucible St., pref	85½- 86
Railway Spr., com	40	Harb.-W. Ref., pref	94

Last transactions up to 1 p.m. to-day are reported at the following prices: United States Steel common 82⅞, preferred 118½, bonds 104⅛; Car & Foundry common 61, preferred 115⅞; Locomotive common 47¼, preferred 110; Colorado Fuel, 37½; Pressed Steel common 39½, preferred 99; Railway Spring common 40; Republic common 34⅜, preferred 98; Sloss-Sheffield common 75; Cast Iron Pipe common 23, preferred 72¼; Can common 9¾, preferred 73; Allis-Chalmers common 9⅝, preferred 34.

Dividends.—The Railway Steel Spring Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable June 20.

The Republic Iron & Steel Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable July 1.

The fifteenth biennial report of the Bureau of Labor Statistics of the State of Illinois has been received. While the report bears the imprint of 1910, it is for the year 1908. Part I gives comprehensive statistics of industrial accidents to employees in Illinois for the six months ending December 31, 1907. Part II gives the second report of industrial accidents to employees in Illinois for the year ending December 31, 1908. Part III relates to women employed in department stores. The volume comprises 592 pages. George L. Pittenger, Centralia, is president of the board, and David Ross, Springfield, is secretary.

In the May 7 issue of the *Survey*, published at 105 East Twenty-second street, New York, is an elaborate illustrated article by David S. Beyer, chief safety inspector of the American Steel & Wire Company, on "Safety Provisions in the United States Steel Corporation." It describes in detail the organization within the Steel Corporation subsidiaries for devising measures and appliances for accident prevention, and tells what it has accomplished thus far.

Two Westinghouse Machine Company low pressure steam turbines, each having a capacity of 500 kw., have been installed at the power plant of the Standard Steel Works, Burnham, Pa. These turbines utilize the waste heat of the main equipment and are designed for a vacuum of 28 in., which will be provided by Westinghouse-Leblanc condensers. The energy thus conserved is applied to the two 500-kw. generators which furnish light and power for the shops.

The Machinery Markets

There is a good call for a general line of machinery equipment, and the demand for machine tools from the railroads throughout the country is better than it has been in some time. An interest is being taken in hydroelectric plants in the East, West and South, and it is apparent that people in that line will be very busy in the near future. The most important announcement made in the trade this week was to the effect that the Oliver Chilled Plow Company, South Bend, Ind., is preparing to build a plant at Hamilton, Canada, costing $1,500,000, which will call for a very general line of machinery equipment. The Delaware, Lackawanna & Western Railroad has issued one of the largest machine tool lists of the year for delivery at its shops at Scranton, Pa. Reports from all parts of Wisconsin are to the effect that almost every industry is especially active and hydroelectric developments and the auto truck business are causing generous purchases. The Chicago market is experiencing a quiet spell, but there is some demand from the railroads. In Detroit the demand is largely from the local trade, but it is especially good. Manufacturers of appliances for boiler making, tank work and iron and steel fabricating in Pittsburgh are doing better than at any time this year. On the north Pacific Coast there is a strong demand for power equipment, especially hydroelectric. In the South and Southwest business has bettered materially, and in Philadelphia, where things have been dull for some time, there are indications from inquiries received that there will be a better volume of business soon.

New York

NEW YORK, May 25, 1910.

There is an excellent demand for machinery from the railroads and the Delaware, Lackawanna & Western Railroad has come forward with one of the largest lists of the year. This list appeared several days ago and most of the houses in this territory have been busy getting their bids ready. It has been given out that orders will be placed very shortly, as equipment is needed for the Scranton, Pa., shops of that company. It will be remembered that about a year ago a large list was issued for the shops, which constitute one of the largest railroad repair plants in the country, and from all indications the present list more than equals the other in size. A number of machinery men who have visited the Scranton shops recently have noted that it is crowded with work, and it has been freely stated that more equipment could be used there to good advantage, so it is highly probable that orders will be placed very soon. There is an especially good demand for power machinery in this territory, and a good volume of it comes from municipal sources. A number of public service corporations are also buying to increase their electric light and power service. The demand for machine tools from the general manufacturing field has fallen off slightly, but this should be expected as the buying movement in machine tools generally comes early in the year and is, as a rule, quiet in the summer months. The foundries are good buyers just now and manufacturers of molding machines are increasing their output largely, as that class of equipment seems to be coming into more general use.

China has been a heavy buyer of railroad equipment and machine tools in this market of late. Through Arnold Karberg & Co. of London, Berlin and New York, who have branches in 11 Chinese cities, China has purchased four Baldwin mallet compound locomotives and four saddle tank locomotives for use on the Peking Kelgan Railroad. The Government has also purchased two side tank locomotives for the Szechuen Ichang Railroad and four standard type locomotives for the Hunan Yueh Han Railroad, in addition to some pile driving equipment and 6000 tons of rails and accessories for the Laotung Railroad. Manning, Maxwell & Moore have also received large orders, principally for machine tools and general shop equipment. Of late the Americans have been doing an increasing business in general machinery lines in China, and inquiries in the market go to show that considerable more can be expected from that source.

A large amount of equipment will no doubt be needed for a new plant to be built at Hamilton, Canada, for the Oliver Chilled Plow Works, South Bend, Ind. The company has purchased 75 acres of land between the Grand Trunk & Western Railroad and Burlington Bay, Hamilton. The tract has a water front of ¼ mile in extent, and has facilities to connect with the important railroads entering the city. The plant will cost about $1,500,000 and the company will require a large line of machine tools, including lathes, planers, drill presses, milling machines, boring mills and similar equipment. There will be a large forge shop, which will be equipped with hot metal working machines, including bulldozers, punches, upsetting machines, triphammers and the like, and considerable foundry equipment will also be needed, besides woodworking tools, cranes, &c. Prack & Perrine, consulting engineers of South Bend, have charge of the plans for the plant, which will include the following structures: Six-story warehouse, 100 x 300 ft.; paint building, three stories, 70 x 200 ft.; assembly building, three stories, 100 x 400 ft.; service building, two stories, 50 x 100 ft.; malleable iron foundry, one story, 120 x 420 ft.; coremaking building, two stories, 40 x 100 ft.; gray iron foundry, one story, 120 x 420 ft.; boiler shop and storage building, two stories, 70 x 100 ft.; wood shop, two stories, 60 x 200 ft.; three dry lumber sheds, each one story, 50 x 150 ft.; flask and chill storage building, one story, 50 x 80 ft.; power house, 50 x 80 ft.; boiler house, 50 x 80 ft.; charging shop, 50 x 80 ft.; iron storage building, one story, 50 x 100 ft.; office building, two stories, 60 x 100 ft., and a number of minor buildings. All of the buildings will be of structural steel and concrete construction, and an internal electric narrow gauge railroad system will be installed. The plant will be operated with a Canadian charter under the name of the Oliver Chilled Plow Works of Canada, Ltd., and Richard A. Smart, works manager of the South Bend plant, will be in charge of the new enterprise.

Specifications will be ready June 20 in the office of Francis R. Weller, Hibbs Building, Washington, D. C., for a hydroelectric plant which he is to build for the municipality of Bedford City, Va. The plant will be located on the James River, and the contract includes the remodeling of an existing electric light plant and the construction of a transmission line between the new plant and Bedford City. The municipality has made a $100,000 bond issue to cover the cost.

A meeting of the Board of Directors of the Goulds Mfg. Company, Seneca Falls, N. Y., will be held June 6, for the purpose of deciding on the proposed plan for doubling the capital stock of the company. It is not known at present if this action indicates any large additions to its plant.

The Parker Boiler Company, Philadelphia, Pa., has received the following orders: York Card & Paper Company, York, Pa., three 267-hp. boilers; Solvay Process Company, Syracuse, N. Y., one 406-hp. boiler with Parker superheater; Eberhard Faber Pencil Company, Brooklyn, N. Y., one 289-hp. boiler; Roslyn Fuel Company, Roslyn, Wash., one 267-hp. boiler.

The Capital Traction Company, Washington, D. C., is planning to erect a power plant on a site recently purchased on Water street, Washington. The size of the proposed plant has not as yet been decided.

The Pennsylvania Railroad is planning the erection of a large new station at Newark, N. J. The station will be 70 x 175 ft., and adjacent to it will be a freight house. Power equipment, freight and elevator lifts and freight handling equipment will be installed. The cost of the enterprise will amount to about $1,000,000.

The 1000 Island Boat & Engine Company, Morristown, N. Y., has increased its capital stock to $50,000, and the company will go into the construction of aeroplanes and will increase its output of general foundry work by adding a foundry building to its plant.

The American Can Company, 447 West Fourteenth street, New York, has planned an extension to its Miller plant at Baltimore, Md., which will include three buildings of the following sizes: 73 x 138 ft., 31 x 40 ft. and 28 x 31 ft. The cost of the improvements will amount to about $40,000.

The Machinery Markets

The Fillmore Avenue Foundry & Iron Works, Buffalo, N. Y., is having plans prepared for extensive additions to be made to the company's plant on Fillmore avenue, the Erie and Pennsylvania railroads. President Lyman S. Hubbell states that further details cannot be given until later, but that the additional equipment to be installed has been arranged for.

The Sowers Mfg. Company, recently incorporated at Buffalo, N. Y., with a capital stock of $100,000, to take over and enlarge the business of the H. W. Dopp Company, has let contracts for an addition to the plant of the former company on Niagara street and the New York Central Railroad, near Auburn avenue, of brick and steel construction, two stories and basement, for which considerable machinery equipment will be required. The company will manufacture special machinery, engines, pumps, heaters, &c., and special gray iron castings up to 6000 lb., in addition to the specialties of the former company, which included steam melting and mixing kettles for soap makers' and rubber makers' use. The company has just completed an export shipment to Italy of special oil refining and soap making machinery. David W. Sowers is president and treasurer.

The National Core Oil Company, manufacturer of core oil and foundry supplies, with factories at Corning and Hornell, N. Y., is erecting a new factory in Buffalo on the Erie Railroad, at the foot of Alabama street.

The Watson Wagon Company, A. A. Keesler, president, Canastota, N. Y., manufacturer of dumping wagons, is having plans prepared for an additional factory building, 51 x 240 ft., also for two double dry kilns, and for an office building 30 x 60 ft., brick, concrete and steel construction.

The Canadian New Way Motor Company, Ltd., will build a plant at Welland, Ont., to manufacture air cooled gas and gasoline engines. The company has recently been chartered to operate the Canadian branch factory of the New Way Motor Company of Lansing, Mich.

One of the largest collections of big used machine tools ever gotten together in this market for resale is being offered by J. J. McCabe, 30 Church street, New York. The collection includes such machines as triple geared lathes with 102-in. swing, roughing lathes, engine lathes up to 64-in. swing, especially powerful radial drills, &c.

The Shaw Electric Company, Red Bank, N. J., is building a new power plant along the Central Railroad tracks in that city. The enterprise will cost about $75,000 and about 1000 hp. of equipment will be installed.

The Public Service Corporation, Newark, N. J., will build a power house at Perth Amboy, N. J., to develop current for light and power delivered throughout Middlesex County. The size of the proposed plant has not yet been entirely decided upon.

The Trenton Iron Company, Trenton, N. J., is contemplating the erection of an addition to its plant which is to be a woodworking department.

The J. G. Brown Forged Steel & Iron Works, Franklin street, Brooklyn, N. Y., is adding to its machinery department.

The Electric Bond & Share Company, 62 Cedar street, New York, which has a controlling interest in the Anniston Electric & Gas Company, Anniston, Ala., is providing for an additional generating unit to increase the capacity of the power plant to about 1500 kw. The set last installed was a Curtis vertical turbine and generator furnished by the General Electric Company.

Plans will be drawn for a power station at Allentown, N. Y., to be erected by the Southwestern New York Traction Company, which is preparing to build from Bolivar to Wellsville, N. Y. The company's headquarters are at Bolivar.

A steam turbine and alternating current generator, inclosed type, of 2500 kw., will be added to the electric power facilities of the Flatbush Gas Company, Brooklyn, N. Y. The contract for this unit, with auxiliary machinery, has already been placed.

The International Tool Steel Company, Ltd., Toronto, Canada, will erect a plant at Welland, Ont., for which tenders will be asked within a short time. It is understood that none of the equipment for this plant has been purchased as yet.

Plans are under way for financing the Mosher Water Tube Boiler Company by means of an issue of bonds, the proceeds of which will be used to build a large plant with modern equipment. An option on a water front site for the new plant has been secured on the New Jersey shore. The mortgage is now being drawn up and the details of the issue are being arranged. When the new plant is completed the company's present one, which is located at Ossining, will probably be abandoned and operations will be conducted solely at the new location. The New York offices of the company are in the Hudson Terminal Building.

Bids will be received until June 20 by Major M. Gray Zalinski, Quartermaster's Department, Army Building, New York, for one ice and refrigerating plant to be shipped to the Philippine Islands. Prices are wanted f.o.b. steamer, New York or San Francisco.

Business Changes

Barton L. Keen has removed to rooms 614 and 615, 56 Liberty street, corner of Nassau street, New York. While representing especially the Birmingham Machine & Foundry Company, American Cast Iron Pipe Company, American Casting Company and Boland Machine & Mfg. Company, he will continue to do a general engineering and export business in iron and steel products, specializing on sugar machinery and the interests allied with it.

The Alberger Condenser Company and the Alberger Pump Company have moved their New York offices from 95 Liberty street to the West Street Building.

The Central Foundry Company and the Central Iron & Coal Company have moved their offices from 37 Wall street to the West Street Building.

Chicago

CHICAGO, ILL., May 24, 1910.

The Chicago machinery market is going through another quiet spell, with a fair volume of business but no large or notable transactions. The most interesting feature of the trade is the inquiry from manufacturers in the smaller towns through the West who are making many extensions and improvements. The orders of this character seldom call for more than a few machines at a time, but occasionally a very desirable inquiry is received from automobile concerns in connection with their plans for next year. The automobile people are undoubtedly making large profits this year, as the enormous increase in their output of cars has not carried with it any corresponding increase in the burden of administrative and selling expenses, and the companies which have confidence to make extensions and buy new tools will have no difficulty in financing their operations. In many cases large automobile concerns are running three shifts a day in their factories. The railroads are still holding off in their purchases. They are buying occasional tools, apparently where it is absolutely necessary, but are making little provision for the future. A few of the more progressive roads are going forward with expenditures, but there are more that are holding back. They have a new excuse now for restricting purchases. The roads both in the East and West are trying to effect a general advance in freight rates, and the ambargo bureau has begun operations to create sentiment among manufacturers and business men in favor of the advance. The people who sell to railroads are being impressed with the fact that these great purchasers of material and equipment cannot afford to make liberal expenditures until they obtain more revenue through an advance in rates. Last winter the same bureau carried on an agitation along the same lines to influence legislation at Washington, and its activity was largely responsible for the general check in business activity which came on in February. A contract was let last week for new car shops for the Big Four Railroad near Indianapolis which will eventually call for a considerable list of new machines, but several other projects in the West for new car shops are dragging along without any progress.

Joseph T. Ryerson & Son, Chicago, have recently completed the installation of complete hydraulic and electrical equipment for the new shops of the Avery Company at Peoria, Ill. Aside from the hydraulic equipment used for boiler work, several motor driven tools of the most improved type have been installed.

Edward Double, president of the Union Tool Company, Los Angeles, Cal., has purchased a large foundry at West Chicago, Ill., and it is understood it is his intention to enlarge the plant, giving it an additional frontage on the Elgin, Joliet & Eastern Railroad of 200 ft.

The Belvidere Screw & Machine Company, Belvidere, Ill., has been incorporated, with a paid up capital stock of $100,000, and will commence work in the near future on a new factory building to be erected during the summer. A power plant will be installed and direct connected motors will be used for operation of all equipment to be installed in the plant. It is understood that orders have been placed for most of the equipment to be installed.

The Prest-O-Lite Company, Indianapolis, Ind., has purchased from the Grant Land Association a block of ground on Fifty-second avenue, near Nineteenth street, Chicago, where it will erect a plant for the manufacture of Prest-O-Lite tanks and gas.

The Dart Mfg. Company, Anderson, Ind., manufacturer of commercial motor vehicles and light delivery wagons, has signed a contract for removal of its plant to Waterloo, Iowa, and is now having plans prepared for the erection of factory

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buildings, the first of which will be 60 x 400 ft., to be constructed of reinforced concrete. The company will have largely increased manufacturing facilities at its new plant, which will necessitate the installation of considerable more equipment than that now in use in its factory at Anderson.

The Wabash Gear Works, Wabash, Ind., has secured a new site from the Commercial Club of that city and will begin preparations immediately for the erection of new buildings of much larger capacity than those now occupied by the company at its old site. Considerable machinery will be purchased by the company for installation at the new plant when completed.

The Interlocking Steel Form Company, 925 Unity Building, Chicago, recently incorporated with a capital stock of $50,000, is negotiating for a site upon which it will erect a factory for manufacturing steel tubes to be used in the construction of breakwaters, piers, docks and building and bridge foundations. Machinery to be installed in the plant will consist of shears, rolls and punches, and will be operated by electric motors.

The Crown Electrical Mfg. Company, St. Charles, Ill., is establishing a branch factory at Brantford, Ont. Arrangements have been made for all tools and machinery to be installed.

The Hunkins Gear & Machinery Company, Mason City, Iowa, recently organized in that city, now has its shop in full operation.

The M. Rumley Company, La Porte, Ind., is about to take bids on its contemplated new foundry, 220 x 320 ft., plans for which were referred to some time ago.

The J. W. Dopp Foundry & Machine Company, Des Plaines, Ill., will erect a one-story foundry, 80 x 160 ft., to take the place of the building which was burned.

The National Lock Company, Rockford, Ill., is letting contracts for a four-story addition to its plant, 60 x 200 ft.

The Monmouth Mining & Mfg. Company, Monmouth, Ill., will make improvements in its apparatus for screening.

Armour & Co., Chicago, will install some additional equipment in the plant of the Manitowoc Glue Company, Manitowoc, Wis., which they control.

The Pyle Spring Tire Company has been organized at Indianapolis, Ind., and incorporated with $50,000 capital stock, to manufacture automobile tires and parts. The directors are G. C. Pyle, W. G. Hunter and W. D. Pyle.

The Chambers Mfg. Company has been organized at Shelbyville, Ind., and incorporated with $20,000 capital stock, to manufacture insulated stoves and heaters. The directors are E. A. and J. E. Chambers and G. H. Meek.

The Indiana Steel Products Company has been organized at Valparaiso, Ind., and incorporated with $10,000 capital stock, as manufacturer of steel products. The directors are Maurice R., Abe and Mandel Lowenstine and H. R. Curran.

At a special election at Crawfordsville, Ind., the proposition to build a new city electric light and power plant at estimated cost of $85,000 was carried.

The Ohio Ollitic Stone Company has been incorporated at Bloomington, Ind., with $200,000 capital stock, to quarry and manufacture building stone. The directors are W. F. Dodgson, S. F. George and W. H. Rogers.

The Bimel Spoke & Auto Wheel Company has been incorporated at Portland, Ind., with $130,000 capital stock. The directors are Fred Bimel, J. O. Pierce, J. A. Fuqua, W. D. Schwartz and W. H. Detamore.

The H. Lauter Company, Indianapolis, Ind., manufacturer of desks and other furniture, will build a four-story brick addition to its plant to cost $48,000.

The Coulter-Paxton Company has been organized at Hammond, Ind., and incorporated with $30,000 capital stock, to manufacture steel tools. The directors are W. G. Paxton, C. J. Coulter, J. M. Paxton, H. R. W. Smith and A. J. Coulter.

The Hamilton Motor Car Company has been organized at Greensburg, Ind., and incorporated with $50,000 capital stock, to manufacture motor cars. The directors are Harry W. Hamilton, C. P. Corbett, Walter W. Bonner, H. T. Woodfill and David A. Myers.

The National Sanitary Pottery Company will build a $100,000 addition to its plant at Evansville, Ind., increasing the output of bathroom pottery to $1,000,000 a year.

The American Valve Company has been organized at Indianapolis, Ind., and incorporated with $10,000 capital stock, to manufacture plumbing supplies. The directors are Andrew L. Henry, Lemon H. Trotter and George N. Montgomery.

The White River Power Company has been incorporated at Bedford, Ind., to furnish electric power. The directors are John T. Freeland, John W. Monical and Milton Meyers.

The Commissioners of Hancock County, meeting at Greenfield, Ind., will receive bids June 20 for the construction of a steel bridge over Blue River. C. H. Troy is County Auditor.

Extensions to the plant of the Maxwell-Briscoe Motor Company at Newcastle, Ind., will be sufficient to make the output of automobiles 25,000 for the season of 1911.

The Rochester Bridge Company, Rochester, Ind., has received the contract for three steel bridges at Boise, Idaho, amounting to $45,000. The company has just moved the machinery from the old building to a fine new modern structure, which is well equipped for structural steel work.

The plant of the C. G. Conn Company, Elkhart, Ind., said to be the largest manufacturer of brass band instruments in the world, was destroyed by fire May 21.

The foundry of the McIlroy Belting & Hose Company, Hammond, Ind., was badly damaged by fire May 13. The company will require a new 100-hp. engine and boilers to match, in addition to a quantity of shafting and pulleys.

Brill & Gardner, engineers and architects, 204 Dearborn street, Chicago, have awarded a contract for the erection of 12 buildings for the Barrett Mfg. Company. A power house, pump house, car repair shop and laboratory are included in the list. Part of the necessary equipment has been provided for, but additional machinery will be required for the car repair shop. It is understood that Brill & Gardner will have the purchasing in charge.

Brown & Sharpe Mfg. Company, Providence, R. I., announces that the business heretofore conducted in the name of F. A. Rich, agent, Chicago, will hereafter be in the name of Brown & Sharpe Mfg. Company, with Henry Buker as Western representative. Mr. Rich will remain connected with the Chicago office. The company requests that all checks for outstanding accounts be made to the order of Brown & Sharpe Mfg. Company, Chicago.

Schwartzchild & Sulzberger, Union Stock Yards, Chicago, will erect at Packingtown, a suburb of Oklahoma City, Okla., a packing plant containing 12 buildings at a cost of $2,000,000. The buildings will be constructed of reinforced concrete and mill construction, and will be erected under the supervision of the company's engineer, L. Levy. None of the material to be used in the construction of the plant or the equipment to be installed when completed has been purchased.

The Chicago-Racine Aluminum Brass & Iron Works, Chicago, has been incorporated with a capital stock of $16,000 to manufacture metal specialties, machinery and devices. The incorporators are Elmer E. Jackson, 107 Dearborn street, Chicago; Clyde C. Colwell and Cyrus H. Adams.

Philadelphia

PHILADELPHIA, PA., May 24, 1910.

There has been a further lull in inquiries and the market during the week has been devoid of any particular features. Occasional inquiries for a few tools come out and the general opinion is that a more aggressive movement is likely in the near future. A moderate list of tools for the Western Maryland Railroad is expected, while the Baldwin Locomotive Works is asking for several lathes and is understood to have the prospective purchase of a fair list of tools under consideration. Sales in this territory recently have been confined principally to the smaller classes of equipment and continue largely of the single tool character. Builders of special tools are interested in some recent business before the trade for export to China; in a general way, however, the foreign demand drags, particularly when it comes to tools of the standard types.

The power equipment market shows somewhat greater activity, there is a very fair run of business pending and more appears to be developing from time to time, the bulk of which, however, is of moderate individual capacity. The second-hand tool, machinery and power equipment merchants report an encouraging trade covering quite a diversified range. Machine tool manufacturers continue actively engaged, but note a slight falling off in immediate orders; with a good volume of orders on their books, any moderate let up in business is not being considered seriously, as it is believed that the lull in demand will not be prolonged. In some instances difficulty is experienced in obtaining sufficient satisfactory labor to take care of business already on hand. The delay in obtaining steel castings for machine tool construction is still very pronounced, steel casting foundries in this territory being fully engaged; gray iron castings can, however, be had with comparative promptness.

Ballinger & Perrot, engineers, are taking estimates for a refectory building, 96 x 134 ft.; a kitchen, 68 x 96 ft.; a power house, 45 x 77 ft., and a laundry, 41 x 68 ft., to be erected for the Academy of the Immaculate Heart, Frazer, Pa. The requirements for the power house and laundry will, in all probability, be looked after by the engineers. They state, however, that it will be several months before this matter is taken up.

Welsh, Sturtevant & Poggi, architects and engineers,

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Wilkes-Barre, Pa., are understood to have plans about completed for a $50,000 central heating plant to be installed for the Pennsylvania State Sanitarium at Mt. Alto, Pa.

The Keystone Leather Company, Camden, N. J., is having plans made by Charles J. Brooke, architect, for a seven-story warehouse of slow burning construction, 90 x 100 ft., on the ground plan, estimates for which will be taken in the near future. In addition to elevators the only machinery equipment required will be leather trimming machines.

It is reported that the Frackville, Pa., Board of Trade has succeeded in having the Sprohnle Mfg. Company, manufacturer of automobiles, locate in that city, where a new plant is to be erected.

H. M. Frecker, lately connected with the Prentiss Tool & Supply Company, New York, has been appointed sales manager of the Philadelphia branch of Hill, Clarke & Co., Inc., Boston, Mass. A. H. MacBriar, who was also formerly with the Prentiss Tool & Supply Company, New York, is now associated with the local office of that company as sales representative.

Herman L. Winterer, second-hand machinery merchant, has recently purchased the equipment in the plant of the Brush Electric Light Company, Twentieth and Ranstead streets, which is being dismantled. The equipment includes two 375-hp. Heine boilers and eight 150-hp. horizontal tubular boilers, three Corliss engines of 1300, 750 and 250 hp. capacity, and a number of dynamos and general equipment.

Apt Brothers have let a contract to H. C. Rea, builder, for the erection of a one-story garage, 125 x 137 ft., at Sedgely avenue and Clifford street, from plans by Sauer & Hahn. The work will cost $12,000. Machine shop equipment for repair purposes is to be installed.

The woodworking mill of the Hall Brothers & Wood Company, Fifty-fourth street and Lancaster avenue, was destroyed by fire on May 14. The loss is estimated at $75,000 and is practically total as far as building and machinery is concerned. It is the intention of the company to rebuild and reequip the plant as soon as possible.

Plans for the proposed brewery of Lewis Neuweiler & Son, Allentown, Pa., it is said, include the following buildings: A five-story stock house, a four-story brew house, two-story washhouse, two-story bottling house, two-story machine shop, office building, boiler house and cooper shop.

The Walker Electric Company has let a contract to the Roydhouse-Arey Company for a one-story erecting building, having 10,000 sq. ft. of floor space, at 2729-2733 Callowhill street. The bulk of the equipment required will be removed from the company's present erecting shop. Electric power from its present plant, in the immediate vicinity of the new shop, will be used.

The Scott Paper Company has purchased what is known as the Modoc property at the foot of Market street, Chester, Pa., which it will use for the manufacture of paper. The plant will be completely equipped with modern power and paper making machinery, details regarding which are now being worked on.

The D. Nast Machinery Company, the office of which has heretofore been located in Room 368, Bourse Building, has removed to Section V, Bourse Machinery Hall, where a display of a full line of tools and equipment will be made.

Cincinnati

CINCINNATI, OHIO, May 24, 1910.

Machinery dealers and manufacturers of tools and machinery in this market are as a rule quite satisfied with May business so far, and there are none but report the month relatively of more importance than April. A few whose specialties are standard tools say that if the present pace is continued the month will show results not far from best business years. Inquiry from automobile building concerns is of a very encouraging nature also, and with some tool manufacturers this character of business furnishes the principal part of their output.

Manufacturers of electrical power machinery report business excellent. The representative of one of the largest interests reports that the volume of business through the Cincinnati office so far this year has exceeded that for a similar period in the four years that he has been connected with this office.

Jobbing foundries in the central territory report business as having fallen off considerably since the first of the year, but those specializing on small castings and for miscellaneous articles of every day use announce satisfactory conditions. A few foundries in the Cincinnati tool manufacturing district proper are pouring but three medium sized heats per week.

Some important improvements are planned at the plant of the R. K. Le Blond Machine Tool Company. The architects are getting plans ready for bids on structures to adjoin the present plant on the south; one will be a one-story reinforced concrete building, 40 x 320 ft.; another a four-story structure, 40 x 240 ft. The saw tooth style of roof will be used throughout. Plans were recently completed and contracts let for a shipping building 50 x 200 ft. Business has been excellent since the first of the year, and the new buildings will be used to secure necessary room for expanding. A large part of the greatly increased business at this plant is reported to come from automobile manufacturers.

President Jacob Freund of the Cincinnati Roofing Tile & Terra Cotta Company and the Jacob Freund Roofing Company destroyed by fire recently, has authorized the rebuilding of both plants and they will be of greatly increased size. The new tile plant will be 40 x 250 ft., one story; the new roofing works will be 80 x 450 ft.; both will be of steel and iron clad construction.

The Buckeye Stamping Company of Columbus, Ohio, has let contracts for a fireproof building in South Columbus to cost in the neighborhood of $75,000. The building is to be completed by fall.

The National Automatic Tool Company, Dayton, Ohio, is removing its plant to Richmond, Ind., where a site and a new factory building was donated it by a local improvement association. The new building will be of concrete and three stories high. The company manufactures adjustable drilling machines and tools.

Work has commenced on the Thomas-Albright Company's foundry at Goshen, Ind.

Officials of the Southern Stove Works, Evansville, Ind., have issued a statement that the new plant is in operation in all departments and inviting the general public to inspect it.

Cleveland

CLEVELAND, OHIO, May 24, 1910.

Business with the local machinery houses has been only fair during the week. While the volume of orders does not appear to increase, the general tone of the market is better. Equipment for new manufacturing plants in various lines is expected to bring out a number of inquiries at an early date. No lists of any size came out during the week, and with the exception of the closing up of some deferred business sales were limited mostly to single tools. The demand for second-hand tools is quite active, but very little used machinery equipment is being placed on the market, and in many cases buyers are unable to find what they want in this line.

Encouraging inquiries are reported for equipment for hydroelectric plants, and a local manufacturer is figuring on some large contracts. The demand for ore and coal handling equipment continues good. There is also an active call for steel plant equipment. Tank shops in this territory are getting a good volume of business. Reports from Erie, Pa., indicate that while orders are now somewhat irregular, the engine and boiler builders in that city have enough work in their plants to keep them running full from 30 to 60 days.

Local engineering firms are figuring on a great deal of construction work in the way of new manufacturing plants and additions, for which machinery and power plant equipment will be required later in the season.

In the foundry trade the demand for light castings continues very good and foundries on this class of work have about all that they can do.

The Mechanical Rubber Company, Cleveland, has commenced work on plant additions that will practically double its present capacity. One large new building, 100 x 450 ft., six stories, of structural steel and brick, is being erected. This will be used for manufacturing and warehouse purposes. An addition 10 ft. long and four stories high is also being made to the main building. Other improvements include the installation of motor drive throughout the entire plant. With the completion of the additions the company will add to its present extensive line of rubber products.

The Indiana Steel Company has placed an order with the Wellman-Seaver-Morgan Company, Cleveland, for two coal handling bridges equipped with 7½-ton buckets for its new coke oven plant at Gary, Ind. The Republic Iron & Steel Company has given the same company an order for a low type charging machine for its new Youngstown plant, this order being a duplicate of one placed several weeks ago.

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Among other orders taken recently is one for two Hughes gas producers for the South Chicago plant of the Illinois Steel Company and one for a high type charging machine for the new plant of the Columbia Steel Company at San Francisco, Cal.

While the engineering department of the Pennsylvania Railroad is working on plans for new docks and ore and coal handling machinery for Whisky Island, Cleveland, improvements that will involve an expenditure of about $1,000,000, the reports published by the daily press to the effect that the contracts are soon to be let are denied by that company. The Pennsylvania and other railroads owning lake front property have negotiations under way with the city and it is announced that no steps will be taken toward the dock improvements until these negotiations are concluded. It is believed that the settlement of the pending matters will not be long delayed.

Plans have been completed for a second Technical High School to be erected in Cleveland during the coming year. This will accommodate pupils living on the west side of the city. The present Technical High School on the east side has been overcrowded for some time.

The Columbus Belting & Supply Company, Columbus, Ohio, has been incorporated with a capital stock of $15,000. The company will do a general business in mill, mine and factory supplies. The officers are as follows: Joseph A. Day, president; B. B. Brill, vice-president; Grant Cusac, secretary and treasurer; D. H. Coan, manager, and J. L. Twitchell, assistant manager. The new company will be located at 132-134 East Long street.

The Bauroth Machine Company, Toledo, Ohio, has been incorporated, with a capital stock of $20,000, by Leonhard Bauroth, Emil F. Bauroth, F. A. Bauroth, Hugo Bickel and Henry Stautzenbach. The company operates a machine shop on Earl street in East Toledo. The business has heretofore been conducted as a partnership. The operations of the company will be enlarged.

The Metals Welding Company, Cleveland, has been incorporated, with a capital stock of $50,000, by Frank H. Ginn and others. The company expects to establish a plant, but is not yet ready to announce its plans.

Among the early improvements planned by the Cleveland Railway Company is the installation of four new 500-hp. boilers.

An effort is to be made in Bellevue, Ohio, to subscribe $25,000 for the purchase of stock in the Wise Soda Apparatus Company of Cleveland and secure the location of the company in that city, in the plant formerly occupied by the Bellevue Pipe & Foundry Company.

The Carnegie Steel Company, Republic Iron & Steel Co., and American Car & Foundry Company are among recent purchasers of Swartwout exhaust heads made by the Ohio Blower Company, Cleveland, Ohio.

New England

BOSTON, MASS., May 24, 1910.

Business in New England continues moderate. The dealers here report a fair volume of orders. The machine tool builders are busy, though some of them report that inquiries are not quite so numerous as they have been.

The Baush Machine Tool Company, Springfield, Mass., is adding a large pattern storage building with the purpose of vacating space in the present shops which will be devoted to manufacturing. The company has abandoned its line of boring mills, as has already been stated, and will simplify its line of radials, reducing it to a very few sizes. The management will concentrate its energies on the multi spindle drills which have always been a very important factor in the output and will develop the line for new uses. Recently Frank H. Page purchased the interests of 35 stockholders. No change in management will be made, however. C. J. Wetsel continues as treasurer and general manager, while Mr. Page has been made president. The surplus capacity of the foundry will, as heretofore, be devoted to filling the wants of outside manufacturers, including the Confectioners' Mfg. & Machine Company, of which Mr. Page is the president.

The automobile builders of New England will have accomplished a very large increase in capacity before the season is ended. Large additions to the works of the Maxwell-Briscoe Company and the American Locomotive Company, Providence, R. I.; the Locomobile Company of America, Bridgeport, Conn.; the Pope Mfg. Company and the Columbia Motor Company, Hartford, Conn., have already been noted. Word comes from Springfield that the Knox Automobile Company will erect a six-story factory building, 66 x 125 ft. The General Motors Company plans to make large extensions to the Alden Sampson plant at Pittsfield, Mass., for the manufacture of a line of motor trucks. Announcements are expected from other companies in the near future, various rumors of enlargements being heard. Several new companies are starting in on a small scale. The greatest effect of the automobile industry in New England, however, will be with the manufacturers of parts and accessories, who expect a very large business for next season. Every one is busy; most of these concerns are rushed to their maximum capacity. The line is so extensive that large purchases of machine tools should be totaled during the next few months.

The Allen Mfg. Company, Hartford, Conn., has been incorporated in Connecticut, with authorized capital stock of $50,000, to manufacture a patent setscrew. Temporary quarters have been occupied on Sheldon street and samples are being manufactured, ready for demonstration early in June. The incorporators are William G. Allen, Ira Dimock, Stanley K. Dimock and J. F. Noyes, all of Hartford. The company will manufacture machinery for its own use. The new setscrew, while designed to be flush with the surface which it enters, is said to be fully as strong as the projecting type.

The Mt. Carmel Bolt Company, Mt. Carmel, Conn., has filed a certificate of dissolution of its Connecticut charter, and the report is that the business will be removed to Atlanta, Ga.

The Acme Wire Company, New Haven, Conn., manufacturer of electro magnets and magnet wire, has increased its authorized capital stock from $100,000 to $500,000. The company states that it does not anticipate any decided increase in the plant at present, with the exception of some additional power equipment which is already contracted for.

The Jackson Wire Company, Worcester, Mass., has taken a lease of the factory buildings at Millbury Junction, a few miles out of the city, formerly occupied by the Unique Stove Company, and is equipping them for the business. The company now manufactures bonnet wire and plans to increase the line in the direction of fine wires. The business has just been incorporated with a Massachusetts charter, the officers being G. W. Jackson, president, and W. J. Hall, treasurer, with C. B. S. Jackson as the third director. All are Worcester men. The Messrs. Jackson were formerly with the American Steel & Wire Company at the Worcester works.

The plant of the Richardson Mfg. Company, Worcester, Mass., manufacturer of agricultural machinery, was damaged $10,000 by fire May 20.

The contract has been let for the new punch press building which the General Electric Company will erect at its Pittsfield, Mass., shops. The structure will be 120 x 375 ft., one story.

The American Rotary Machine Company has been incorporated at Hartford, Conn., with a Connecticut charter, "to acquire certain letters patent covering Wilhelm Pittler's system of rotary engines and machines, with a view thereto to enter into and carry into effect an agreement which was entered into between the International Rotations-Maschinen Gesellschaft of Berlin and Armistead Keith Baylor, London, England." The incorporators named are A. K. Baylor, E. M. Sairtelle, Englewood, N. J., and James H. Byrne, New York.

The New England Enameling Company, Middletown, Conn., manufacturer of enameled ware, has taken an extended lease of the plant of the Portland Mfg. Company, Portland, Conn., with an option of purchase. The company's intention is to increase in a large way the business at the branch works.

The Bristol Company, Waterbury, Conn., manufacturer of recording instruments and steel belt lacing, will erect a large factory building which will be used for increased facilities for the manufacture of steel belt lacing.

Albert E. Whitten has purchased of Miss M. Agnes Hodgdon and Albert E. Goodwin their interest in the business of the Cooper Oven Thermometer Company, Terryville, Conn. Miss Hodgdon retires, but Mr. Goodwin will coninue in the employ of the company.

It seems assured that a bill before the Massachusetts Legislature to permit the New York, New Haven & Hartford railroad to acquire a controlling interest in the Berkshire Street Railway will become a law. The New Haven people state that $2,000,000 will be expended in increasing and improving the system in western Massachusetts.

The New York, New Haven & Hartford Railroad has transferred to the Housatonic Power Company all of its gas and electric lighting interests at Norwalk, South Norwalk, Greenwich, Naugatuck, Waterbury, New Britain and other Connecticut centers. The list includes the New Milford Power Company, which supplies large amounts of electric power for traction purposes. The Housatonic Company has increased its capital stock from $1,000,000 to $3,000,000, the new funds to pay for the acquired properties, with a large balance for improvements.

The receiver of the Williams Typewriter Company, Derby, Conn., has petitioned the court for permission to sell the property, a step which is understood to be preliminary to reorganization.

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W. E. Oakley has retired from the management of the Oakley Steel Foundry Company, Millbury, Mass., and it is understood that the business will be carried on as formerly, for the manufacture of crucible steel castings and specialties, under a reorganization.

Additions to general manufacturing facilities recently announced include the following: Toothpick mill at Phillips, Maine, near the spool mill of the International Mfg. Company; Blanchard, England & Co., Leominster, Mass., a new firm, to build a factory for the manufacture of combs, with Charles H. Blanchard, formerly with the Blanchard-Watson Company, as manager; Carroll, Hixon & Jones Company, Milford, Mass., hats, addition 40 x 55 ft., two stories; Simon Petter, Northboro, Mass., addition to textile mill 40 x 60 ft., one story; Wm. Knowlton & Sons, West Upton, Mass., addition to hat factory 40 x 80 ft., three stories; Harty Press Company, New Haven, Conn., printers, three-story factory and office building; Charlton Mill, Fall River, Mass., new mill on site just purchased containing 8 acres of land; Strong-Hewat Company, North Adams, Mass., woolens, four-story addition to Briggsville mill and an additional story for existing building.

The New Departure Mfg. Company, Bristol, Conn., manufacturer of New Departure ball bearings, is installing a twin tandem 500-hp. Snow gas engine, which will increase its power plant to five engines of this type. The new engines will furnish power for three new buildings now in course of erection. The company has been working day and night shifts in several departments for some time past and overtime in other departments.

Pittsburgh

PITTSBURGH, PA., May 24, 1910.

Market conditions, as a whole, continue favorable. In some quarters trade is reported quiet, but this seems to be due to the fact that buying recently has been done in spurts rather than to any falling off in the actual needs of machinery users. There are enough orders now in the shops to justify an optimistic feeling in relation to the future. In the absence of something entirely unforeseen at this time, the record of the district for 1910 cannot fail to be very satisfactory. Equipment for machine shops and foundries sells relatively well, although orders are rather slow in being placed, and tools used in boiler making, tank work, fabricating and erection find a better market now than at any time during the year. The demand is particularly active in the West, where a great deal of local work is in progress, and appears to be quite evenly distributed from Canada to the Gulf.

In a quiet but very effective manner the steel mills, with their allied industries, are providing for largely increased production. To a considerable extent this will be accomplished by the introduction of recently developed economies, including the installation of gas engines operating on waste gas from blast furnaces, low pressure turbines utilizing exhaust steam from engines previously in service, regenerators, mixers, by-product plants, automatic control devices, magnets and apparatus in great variety which save either time or labor. The degree to which production for each 24 hours can be raised by these means would have seemed incredible a few years ago. New and heavier types of mill equipment are also comprised in the replacements found necessary by wear; so that, with the additional machinery purchased from time to time without exciting particular comment, the total outlay of plants in the district continues very large, indeed. These are facts which should be taken into consideration by anyone who is inclined to feel pessimistic over the occasional subsidence in inquiries for the relatively lighter tools used in foundries and machine shops.

The White River Light & Power Company, Noblesville, Ind., recently ordered from Pittsburgh a steam turbine and alternator of 300 kw., to serve as a reserve for its present hydroelectric plant of 800 to 1000 kw., machinery for which was supplied by the General Electric Company. The new set has been built by the Westinghouse Machine Company in its East Pittsburgh shops.

The United Engineering & Foundry Company, Pittsburgh, is making considerable progress in the introduction of a relatively new line of machinery, namely, high-speed steam hydraulic forging presses, in capacities from 100 tons upward.

Machinery required for the impending improvements in the water system at Clarksburg, W. Va., heretofore mentioned, includes two low lift centrifugal pumps, each of 3,000,000 gal. daily capacity, driven by automatic high speed engines, and two multistage pumps of the same type and capacity for high lift. Water tube boilers furnishing 400 hp. will also need to be installed, and a mechanical filtration plant of 3,000,000 gal. capacity is to be constructed. The necessary buildings will be of brick and steel. Contracts are to be closed the latter part of June.

The Union Steel Castings Company, Pittsburgh, is showing photographs of a vanadium cast steel frame which was given 20 blows from a ¼-ton drop ball, under unusually severe conditions, without trace of fracture. The exhibit is interesting as an illustration of the remarkable properties of this new alloy when used in foundry work.

The Columbus & Hocking Coal & Iron Company, Columbus, Ohio, is expected to be in the market shortly for a new Corliss engine and other machinery.

The Nelsonville Foundry & Machine Company, Nelsonville, Ohio, which furnishes complete mine equipments, including machinery for the overhead works, has closed a large number of contracts with collieries in the principal producing districts and future prospects for this class of trade are good.

The Connellsville Machine & Car Company, Connellsville, Pa., has had a good run of inquiries lately for its single and duplex pumps of the Lafayette type to be used in mining work. The same pumps can also be applied to boiler feed service.

It is stated on what appears to be reliable information that the Greenville Electric Light & Power Company, Greenville, Ohio, is in the market for two new Corliss engine generator units of 100 kw. and 200 kw., together with auxiliary machinery.

Purchase of equipment for water works service will be made by the city of Christiansburg, Va., some time during the summer.

The Follansbee Bros. Company, Pittsburgh, has placed contracts for electric generating equipment to be installed in the power house of its mills at Follansbee, W. Va., including a steam turbine of 2000 hp., direct coupled to an inclosed alternating current dynamo for high speed, making an extremely compact unit. Considerable other apparatus is also being provided. The turbine will operate on exhaust steam from engines.

A four cycle, double acting gas engine and electric generator of about 300 kw. capacity will be needed for the municipal power and lighting plant now under construction at Canal Dover, Ohio.

The authorities at Andover, Ohio, have under consideration the installation of water works, but no definite arrangements to that end have as yet been entered into.

The Metallic Alloy Company, Elkton, W. Va., will furnish electric current from its power plant, near that city, for municipal lighting. The company's headquarters are in New York.

The Baldwin Forging & Tool Company, Columbus, Ohio, is not in the market for any new equipment at this time, but may be later on.

The Thomas Carlin's Sons Company, Oliver Building, Pittsburgh, and plant at 1600 River avenue, N. S., Pittsburgh, builder of lever shears for iron and steel works use, grinding pans, contractors' machinery, &c., has just been awarded a contract for a No. 2 Carlin belted lever shear, to cut 5 x 5 in. material, for shipment to a manufacturer of drop forgings in Chicago; also a No. 7 belted shear to cut 3½-in. material for Eastern shipment, in addition to which it is furnishing other manufacturers heavy mill castings for various purposes.

The Hugh Donovan Boiler Works has been moved from Cairo to Parkersburg, W. Va., where it is occupying a building 50 x 100 ft. The company has secured all the equipment it needs for the present.

The Brown & Zortman Machinery Company, Pittsburgh, Pa., has recently purchased a lot of high class second-hand machinery, which is being shipped to its warehouse at 2345 Liberty avenue to be overhauled. The company has a well equipped machine shop and thoroughly repairs all of its second-hand equipment before it is shipped out.

Detroit

DETROIT, MICH., May 24, 1910.

Dealers here are paying less attention than formerly to the local market and more to orders from other parts of the country, trade with some of the large industrial districts of the Middle West having developed very satisfactory proportions. Scattered inquiries are also arriving from owners of metal working shops and manufacturers, generally, located at numerous isolated points, business with which is carried on chiefly by mail, and prospects point to a material increase in business of this class. Advertised lists of slightly used or rebuilt tools, engines, compressors, dynamos, motors, &c., also attract considerable attention, and stock lists need to be frequently revised. In fact, customers wiring for certain equipment within a few days of seeing it listed are apt to find it already gone. This, of course, happens fre-

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quently under any conditions, but it has been especially marked of late. Orders from foundries continue heavy. Facilities for the production of crucible steel, brass and aluminum castings appear to be urgently needed almost everywhere, and many important extensions are reported in addition to new plants.

Some of the manufacturers and jobbing houses in such cities as Detroit, Toledo and Indianapolis, more than in any of the smaller centers, are making quite an effort to obtain the trade of the repair shops, which have sprung up like mushrooms lately all over the country, usually in connection with garages. The growing importance of this business has several times been alluded to in *The Iron Age*, but it is doubtful whether toolmakers realize its present extent or the undoubted requirements of such shops in future. Decided impetus to their establishment is being given by the increased use of motor trucks, which, owing to the severe service they are subjected to, need very frequent repairs. Originally most of these repairs were made in ordinary machine or blacksmith shops, especially those which happened to be a part of the auto-truck owner's plant; but the work can be much more satisfactorily done in a shop devoted especially to it, and it is being diverted accordingly. As a trade filler, and one which will also help to keep down offerings of second-hand stock, the garage repair departments are well worth reckoning with.

The Detroit Radiator Company, Detroit, is putting into service a new shop building, which will be extended later on. Thus far the business has grown faster than adequate manufacturing facilities could be provided.

An official of the Jackson Automobile Company, Jackson, Mich., made the statement, of significance to manufacturers of metal parts for automobiles, that some substitute for the hickory used now for spokes, rims, bodies, &c., would have to be gradually adopted, as the supply of hickory is decreasing at a rapid rate.

It is reported from Orion, Mich., that the Universal Implement Company, a new concern financed by Detroit capital, will build a factory there.

The Cleveland-Cliffs Iron Company has let contracts in Ishpeming, Mich., for the erection of a new power plant, 50 x 50 ft., of brick construction, at the Smith mine.

Dodge Bros., Detroit, Mich., will provide increased power for their machine shops, in the shape of two engine driven alternating current generator units having a combined capacity of 1200 kw., together with auxiliary apparatus. The contract is understood to have been practically placed. Corliss engines will be used as prime movers.

The T. C. Brooks & Son Company, Jackson, Mich., has been awarded contract for erecting and equipping the new municipal pumping plant at Sabetha, Kan.

A new air compressor of large capacity will soon need to be provided by the Lake Copper Company at Greenland, Mich., in order to meet the demands of the drills now used for extending the company's operations. Other machinery is also to be gradually installed and a modern power plant completed.

The Commonwealth Power Company, Jackson, Mich., which now serves several cities in that part of Michigan with hydroelectric power from plants of 25,000 hp. capacity, and also operates two steam stations providing 5000 hp. additional, has just completed plans for another large electric generating station at Kalamazoo, Mich., in which steam turbines will be used as prime movers. There are two sections, each 105 x 145 ft., of brick and steel construction.

The large number of timber cutting and woodworking plants now installing resawing machinery, which was almost unknown a few years ago, is shown by the fact that about 1800 of the machines of this type built by one Michigan company, W. B. Mershon & Co., of Saginaw, are now in service. This represents an economy of operation which promises well for the industries affected.

A new company, known as the Michigan Buick Auto Supply & Garage Company, which is said to have no connection with the Buick Motor Company, will install, as part of a large garage building to be erected in Detroit, the most complete machine shop in the State for motor car repair work. The equipment has not yet been purchased.

Contract has just been let for a five-story factory building, 50 x 110 ft., to be erected by the Globe Knitting Works, Grand Rapids, Mich. Requirements as to machinery are not stated.

The Mercer & Ferdon Lumber Company, Grand Rapids, Mich., has arranged for the construction of a new and modernly equipped woodworking plant.

Plans for an additional story, with floor space 140 x 530 ft., which will require the installation of considerable new motor-driven machinery, have been practically decided upon by the Luce Furniture Company, Grand Rapids, Mich.

James Price, Holland, Mich., is completing plans for a three-story addition to the works of the De Pree Chemical Company and also for a three-story addition to the Gelatine Company's plant.

The enlargement of the municipal power plant at Lansing, Mich., heretofore mentioned, will necessitate purchase of new boilers. Mechanical stokers are to be included in the contract, which has not yet been let.

It is reported from Newaygo, Mich., that the Newaygo Chair Company will erect a steel storage tank or build a reservoir and install additional pumping machinery for serving its factory. The purchase of other plant equipment, including boilers, is also contemplated.

The plant of the De Witt Motor Vehicle Company, North Manchester, Ind., which was recently burned, will, according to advices from there, be rebuilt at once along much more comprehensive lines.

In the power plant of the Lozier Motor Company's new works at Detroit there will be installed an engine of about 1000 hp., driving an alternating current generator of corresponding capacity. Power is to be supplied to a large line of induction motors for operating the machinery in the shops, which will cover 65 acres. Erection of the buildings will soon be started.

The Anderson Forge & Machine Company, Detroit, is sending out invitations to the trade to inspect its exhibit at the Detroit Industrial Exposition, June 20 to July 6. Included in this will be specimens of several styles of cranks made on special orders in chrome nickel, vanadium and ordinary open hearth steel, as well as other work of a similar character.

The erection of a steel tank to hold 300,000 gal. and installation of pumping units for city water service is under consideration at Plymouth, Ind.

The Gray Motor Company, Detroit, will probably erect a new and much larger plant in Fairview, Mich. It is reported that arrangements to that end are now being made.

The first of the manufacturing buildings to be erected by the Warren Motor Car Company, Detroit, for its new plant, is nearly finished, and work on two others has made good progress. The machinery will be provided as fast as there is place for it.

The Fairview Foundry Company, Detroit, will soon have in service its new plant at Fairview. A specialty is to be made of iron, brass and aluminum castings for automobile and marine motors.

The Muskegon Boiler Works, Muskegon, Mich., is taking figures on the erection of an extension to its main shop and the addition of a blacksmith and flanging shop.

The Anderson Carriage Company, Detroit, has begun work on the erection of an addition to its plant 80 x 304 ft., three stories and basement, which will add about 100,000 sq. ft. to seven acres of floor space which the company now occupies. The new structure will be of reinforced concrete construction and will be used for the manufacture of commercial vehicles. It is expected to be ready for occupancy late in the summer.

The Gray Furniture Company, Adrian, Mich., is erecting a new factory building 50 x 112 ft., two stories, and a boiler and engine room 30 x 30 ft., the factory to be equipped with machinery for the manufacture of furniture.

The Ford Motor Company, Detroit, is having plans prepared by Albert Kahn, architect, Detroit, for a machine shop 84 x 240 ft., one story.

The factory of Bradley, Miller & Co., Bay City, Mich., which recently suffered from fire, will be rebuilt, with consequent requirements in power and woodworking machinery.

The Jackson Cushion Spring Company, Jackson, Mich., is erecting a new plant which will be completed about the middle of June, for which most of the equipment has been purchased. The company, however, advises that it will probably install a few additional spring coiling machines, spring knotting machines, multiple press punch and electric motors.

A project for the installation of high pressure pumps and mains to be used in protecting the business district of the city from fire is under consideration at Detroit, but has not yet advanced beyond the preliminary stages.

The Hastings Motor Shaft Company, Hastings, Mich., recently incorporated with authorized capital stock of $30,000, is erecting a factory building 36 x 70 ft., for the manufacture of solid cam shafts, crank shafts and motor specialties. All necessary equipment has been purchased.

The Port Huron Engine & Thresher Works, Port Huron, Mich., suffered considerable damage by fire May 16, its boiler and sheet iron departments being practically destroyed and much of its machinery was a total loss. Rapid work was done in repairing such damaged parts as could be put in shape and the company was fortunate enough to procure new equipment, so that work is now being done under temporary arrangements.

The Briscoe Mfg. Company, Detroit, is erecting a factory for the manufacture of auto parts, 63 x 83 ft., one story.

John H. Johnson, Peninsular Savings Bank, Detroit, is having erected a shop, 80 x 104 ft., for the manufacture of auto parts.

The Lafayette Engineering Company, Lafayette, Ind.,

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secured the contract from the Monon Railroad for an addition to the machine repair shops, 110 x 175 ft., the contract price being $30,000. The equipment will cost $25,000 additional. Individual electric motors will be installed later to run all the machinery in the Lafayette plant.

Milwaukee

MILWAUKEE, WIS., May 23, 1910.

The favorable conditions recently noted have been maintained. Quiet, but persistent, buying has developed in behalf of so many interests that any cessation on the part of one is almost certain to be counterbalanced by the growing activity of others. This is true with reference not only to the trade of Wisconsin and adjacent districts, but also in relation to business obtained from other sections of the country and from abroad. In the foreign field there are a number of important contracts pending in which local firms are interested, including machinery for extensive development in the republics lying to the south of the United States, and also in Africa, China, Corea and the Philippines. Other notable projects in the Southwest and the Northwestern States and provinces will involve the placing of a great deal of business during the late summer and early autumn, and signs are not wanting that the present progress on the iron ranges, of which much has been said lately, is only a precursor of much more extensive operations to come. Altogether, therefore, the situation is bright with promise.

Industries of Wisconsin are absorbing machine tools, as well as other shop and foundry equipment, to a far greater extent this season than at any previous period in the history of the State. It is probably safe to assert that the majority of manufacturers engaged in various lines of metal and wood working have been educated to the use of the best modern machinery; hence inferior grades of tools sell to considerably less advantage than formerly. At the same time second-hand machinery of guaranteed operating efficiency is freely taken, and tools which have been rebuilt by concerns having a reputation for doing work of that kind are also in fairly good demand.

In connection with the zinc, lead and iron mining operations of Wisconsin, it should be borne in mind that equipment conditions are radically changing as the result of the tendency toward the complete electrification of these industries. Wherever it is possible to do so, motors are being substituted for all other forms of driving apparatus, with the result that the new machinery purchased is more compact, less expensive to install and more readily controlled than the older types used. Application of some of the new alloy steels in the construction of machinery for mining and ore reduction has wrought wonders in securing lightness with strength of parts. It will pay some manufacturers who have gone on making the same general types of equipment, year after year, and who wonder why their sales in certain mining districts are diminishing, to enter upon a careful investigation of present operating conditions. They will then learn the reason for many things which apparently puzzle some of them now.

Some apprehension has been expressed by iron and steel founders, particularly those who depend entirely upon custom working, that the building of so many new plants and extension of existing foundries which have either taken place recently or are in prospect, will be disastrous to the entire trade as soon as the first decided slump in demand is felt. Manufacturers, however, who get around the country a good deal and are well posted on conditions, assert that there is no danger of this. For the past eight or nine months the gain already made in foundry production has no more than barely kept pace with the needs of users, and the latter are increasing at a rate which threatens to outstrip all efforts to follow their lead.

Financial conditions are improving. Bond issues have in many cases lately been oversubscribed, where formerly their issue was considered inexpedient, and support for new industrial ventures is more readily obtainable than it was two or three months ago. This enables a good deal of new work to be undertaken by municipalities, public service corporations and individual companies, which has heretofore been delayed. One of the results will undoubtedly be a liberal run of inquiries and orders throughout the summer. It is a common matter of remark here that numerous vacations which were planned for that period by leading manufacturers or officials of companies will have to be considerably curtailed if the business now offering is properly attended to. For the men in the shops there is no possibility of any let-up, and in many establishments extensive use of night shifts will be unavoidable.

Plans are now being drawn in the engineering department of Marquette University, Milwaukee, for a central power and heating plant to serve all of the college buildings, which are considerably scattered. The initial installation will include three large boilers, one high pressure and two low pressure, with accessory apparatus.

Geo. H. Benzenberg, formerly city engineer of Milwaukee, has been retained as a consulting expert to assist the municipal officials in providing for a better filtration system at Pittsburgh, Pa.

The installation of a new boiler and a pumping engine to provide for 5,000,000 gal. additional capacity daily is recommended for the city water works at Fond du Lac, Wis. Plans recently outlined also call for a motor-driven pumping unit of smaller capacity and some auxiliary apparatus.

Preparations are in progress for an addition of considerable size to be made to the plant of the Racine Aluminum & Brass Foundry, Racine, Wis.

Among the requirements of the Twin City Iron Works, Hurley, Wis., for its new automobile repair shop, previously mentioned, will be a new boiler.

A new factory will be built in Sheboygan, Wis., by the Central Upholstering Company, recently organized there for the purpose. Land for a site has been secured.

Machinery for electric motor drive is likely to be required this summer by the Marshfield Brewing Company, Marshfield, Wis., which contemplates some changes in its system.

The Beaver Dam Mfg. Company, Beaver Dam, Wis., has let contracts for a forge shop 70 x 170 ft., and a woodworking plant 40 x 60 ft.

The Superior Water, Light & Power Company, Superior, Wis., which has a large electric plant of its own and is also connected to the mains of the Great Northern Power Company, Duluth, will require some new equipment this season, in consequence of the recent decision to extend and improve its service.

A new mill with power apparatus will be erected by the C. W. Cheney Company, Eau Claire, Wis.

Contracts are now being placed for work on the new machine shop, 100 x 100 ft., of the T. L. Smith Company, Milwaukee. It will be served by traveling cranes.

The Power & Mining Machinery Company, Milwaukee, will furnish two large gyratory crushers of the McCully type, and other machinery, to be installed by the International Machinery & Engineering Company, Mexico City, in the new ore reduction plant of the Casados Mining Company, for which it has designed the complete equipment. The works will be electrically operated. Steel tanks for cyaniding operations will be erected.

The Filer & Stowell Company, Milwaukee, has completed the shipment of a full complement of machinery to be erected in a timber cutting plant on one of the Philippine Islands. The purchaser is the Negros-Philippine Lumber Company, of which Frank W. Broad, Denver, Colo., is stated to be president.

The plans of the Sheboygan Woodworking Company, Sheboygan, Wis., for an addition to its factory, will soon take definite form.

Construction of a pumping plant and water works system at Medford, Wis., will begin this summer. The work was recently authorized, but plans and specifications have not yet been drawn. Machinery will not be purchased until later.

A large boiler, dynamo set, motor driven fans and other mechanical equipment are required for a new public building at Marinette, Wis., of which Derrick Hubert, Menominee, Mich., is supervising architect.

The Langstadt-Meyer Construction & Supply Company, Appleton, Wis., is making a specialty of the electrification of industrial plants, having equipped quite a number with motor drive.

The Curtis & Yale Company, Wausau, Wis., is building another three-story addition to its machine shop, and some equipment is also being installed in one of the woodworking plants.

Plans will be made shortly for the pumping plant and water distribution system, including probable use of an elevated steel tank, construction of which was recently authorized at Alma, Wis. It will, however, be some weeks before bids are invited.

The Case Company, Racine, Wis., has been incorporated for $100,000, as an organization distinct from the other Case interests, for the purpose of manufacturing automobiles. Suitable buildings are to be erected and equipped with machinery of the most modern types.

The Neillsville Electric & Water Supply Company, Neillsville, Wis., is planning to start work on a new plant driven by hydraulic power, which will have a capacity of about 750 kw. At present only a steam electric generating station of moderate size is operated, Allis engines being used.

Securing new factories, including foundry and machine shops, is the object of the Industrial Club, which has just been formed at New Richmond, Wis. Cheap hydroelectric

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power from a development now in progress is one of the inducements offered. This is one of the best locations in northern Wisconsin and affords a good class of labor.

New pumping machinery and other equipment will need to be installed by the Appleton Water Works Company, Appleton, Wis., if the ruling of the State Railroad Commission is complied with. In a decision just rendered, the company is ordered to reconstruct its plant within three months, so as to furnish a better water supply.

The suction system of refuse removal is being put to a novel use by the Northwestern Fuel Company at its docks and yards in Superior, Wis. By means of pipes opening on the area where operations are in progress, the flying coal dust is drawn into a pit, motor driven exhaust fans being used to create the suction. The dust thus collected is treated in a briquetting plant.

The National Enameling & Stamping Company, Milwaukee, whose requirements were referred to some time ago, has decided upon the installation of a single phase alternating current generator of 200 kw., with exciter dynamo, switchboard and control apparatus. Current will be supplied to motors operating machinery in the works.

The Jacob J. Vollrath Mfg. Company, Sheboygan, Wis., which has, for nearly a year past, had in contemplation plans for additions, is about to proceed with the erection of buildings 150 x 252, 80 x 115, 82 x 100 and 220 x 380 ft. The details of equipment do not appear to have been as yet fully decided upon.

The Reliance Engineering & Equipment Company will remove June 1 to offices 1417-18-19 Majestic Building, Milwaukee. Present requirements of this company include 1¼-in. turret lathe, with 14¼-in. swing, and an 11-in. speed lathe. Good second-hand machines will be considered for prompt delivery.

The plant of the H. W. Wright Lumber Company, Merrill, Wis., is reported to be a total loss from fire. Information is lacking as to whether or not it will be replaced.

The Wausau Sulphate Fibre Company, Wausau, Wis., is contemplating a change in the location of its factory, but the new location has not yet been determined upon.

The Oostburg Steel Foundry Company, Oostburg, Wis., is building an addition to its plant to be used as a cleaning and finishing room for castings. Tumbling barrels, a sand blast and several saws are being installed. The company is also contemplating the installation of two more furnaces.

The Harley-Davidson Motor Company, Milwaukee, now making the extension to its plant recently mentioned, is in the market for small machinery equipment. The company has purchased a number of screw machines and automatics.

The South

CHATTANOOGA, TENN., May 23, 1910.

Local improvements and development work continue sufficiently heavy to keep the machinery market on a much more satisfactory level than was predicted only a few weeks ago, and in more than one quarter a surprising degree of strength is being exhibited. Some of the large jobbing houses that curtailed their sales forces have found it necessary to put out more traveling representatives, and manufacturers' agents seem to be in greater number than they were for quite a while. In this territory, especially, where so much business is transacted by personal interviews, the condition noted always means either present or impending activity. Sometimes the results are not at once apparent, or at least as much so as they have been lately, but these come in their course.

Bids on engines, dynamos, pumps, compressors and other machinery for public service plants are being invited by many municipalities, and the number of these opportunities for the sale of apparatus will increase from this time forward, as funds from the disposal of bonds become available. Contractors who make a specialty of municipal work are also completing preparations for a busy season.

For dredging operations and the removal of material washed into sump holes, the use of centrifugal suction pumps, driven by oil engines, gasoline engines or electric motors, as well as to a decreasing extent by small steam engines, is becoming quite general, and within the next few years there will be a very broad market for such pumps in all of the low lying districts of the South. For filling operations, similar to those which were so extensively conducted at Galveston after the tidal wave devastation, a special type of sand pump is also in demand.

Machinery used for mining, crushing and handling iron ore, as well as for its subsequent treatment in the furnaces, is being purchased in greater quantity than for some time past. A good many independent operations are developing, with more promised for the immediate future.

The Bristol Gas & Electric Company, Bristol, Tenn., is reported to have closed contract with the Doe River Lighting & Power Company to furnish electric current from a new plant on the Watauga River. This current is to be used mainly for operating motors in industrial plants at Bristol. The last named company's address is Elizabethton, Tenn., where it already operates a small hydroelectric station. It is now taking bids on machinery for the Watauga River station.

The commercial interests of Anniston, Ala., have started an energetic campaign to promote the industrial growth of the city. Free sites and exemption of taxes for a period are offered new factories, together with capital for building, at a low rate of interest. A company manufacturing parcel elevators has just announced its intention of locating there and others have the matter under consideration. Any one interested should address the Chamber of Commerce.

The Chattanooga & Tennessee Power Company, whose plant near Chattanooga was recently mentioned as nearing completion, will contain vertical shaft turbine of 42,000 hp., built by the S. Morgan Smith Company, York, Pa., driving alternating current generators. It will be the largest hydroelectric plant in the South, although two of the Southern Power Company's developments closely approach it in generating capacity.

Power equipment will be needed by fall for the Noccalula Railway, Light & Power Company, recently organized at Gadsden, Ala., and there will be some industrial developments along its right of way. Information can be obtained through H. A. Rodgers of Gadsden.

Among the new selling agencies in the South is the Dixie Foundry & Supply Company, which recently opened for business in Chattanooga.

There will be some increase made during the season in the manufacturing facilities of the Longview Lime Works, Birmingham, Ala., with probable purchase of new equipment.

The Newton Lumber & Mfg. Company, Newton, Miss., has ordered machinery for a large new mill. Some additional apparatus will be required later.

Contracts covering equipment for a municipal power station will probably be let in the near future, if not already decided upon, at Blacksburg, S. C., where plans recently prepared are now being gone over.

Some new electrical apparatus is being installed in the plant of the Milledgeville Brick Works, Milledgeville, Ga., and other improvements are to follow. The Oconee River Mills, which secured control of the Milledgeville Electric Light Company's plant, is furnishing power for industrial service.

The East Birmingham Iron Roofing & Corrugating Company, which has sold sheet metal to the Southern building trade for a quarter of a century, finds this season the most active in its history. The offices of the company are in the Empire Building, at Birmingham, Ala.

The Moncrief Furnace Company, Atlanta, Ga., is finding an unprecedentedly large demand at the present time for heating apparatus to be installed in public buildings, including provision for mechanical draft. The South now affords a much larger market than in former years for equipment of this kind.

Machinery for the new water works system at Gainesville, Ga., heretofore referred to, will not be purchased until about August 1. Bids on the pumping plant building will be taken about a month earlier.

A large new factory will probably be built this season at Stockton, Ala., by the Bacon Underwood Veneer Company, Mobile, Ala.

The Memphis Mining Company will install electric power machinery for its operations near Island, Ky., including an engine driven direct current generator unit of 400 kw. capacity.

The Breece Mfg. Company, Portsmouth, Ohio, intends establishing a plant at Selma, Ala., for the manufacture of auto and carriage spokes. About $20,000 will be invested in the plant, which will employ from 25 to 30 men. H. E. Masters, Myrtlewood, Ala., will be president and general manager.

The authorities at Jacksonville, Fla., are reported to contemplate purchase of another 1500-kw. generating set for the city electric plant, which already contains steam turbine units of 3500 kw., and some engine driven machines.

Plans for a pumping plant and complete system of water works at Easley, S. C., are now being prepared by engineers in the employ of the city, and the purchase of equipment will be taken up about August 1. An electric power and lighting station may also be erected for municipal service.

The Newman Machine Company, Greensboro, N. C., is putting out a combined double planer and matcher, which has found considerable favor among Southern woodworking plants.

It is persistently reported, and probably true, that a duplicate of the extensive plant which the Great Southern Lumber Company operates at Bogalusa, La., will be built

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at Columbia, Miss. If this comes to pass it will mean large orders for boilers, engines or steam turbines, generators, motors, transmission machinery, conveyors and other apparatus, besides operating machinery of the heaviest type.

Purchase of apparatus for a water works system is expected to be taken up at Warrenton, Ga., some time this summer.

The steel frame planing mill of the Great Southern Lumber Company, Bogalusa, La., which was the largest in that section, has been burned. A new structure is to be built at once. The machinery requirements will be considerable.

The Board of Public Works, H. F. Van Dusen, chairman, Chattanooga, Tenn., will receive bids until June 7 for machinery to be installed in a sewage pumping station. Two centrifugal pumps with electric motors, shafting, &c., are included in the list of requirements. Specifications may be obtained on application to Robert Hooke, city engineer.

The city of Sparta, Ga., has voted a $40,000 bond issue for the construction of water works system. Walter & Wagner, Empire Building, Atlanta, drew up the plans. John D. Walker is Mayor.

The Northwest

MINNEAPOLIS, MINN., May 23, 1910.

In point of aggregate value, the bulk of the trade since the first half of the month has gone to representatives of outside houses, having included some very large orders for power and electrical machinery. In standard lines of shop, foundry and factory equipment, however, dealers at the principal centers of distribution are holding their own, while for everything that enters into building operations, including private power, heating and ventilating plants, local stocks have been depleted to an extent that has made rush shipments necessary. An effort is now being made by many dealers to make bookings just as far ahead as possible and provide for delivery of the apparatus in due course. Traffic conditions are again expected to become troublesome, and by fall the rush of outbound coal and other supplies, as well as inbound grain, will tend to prevent proper care of customers ordering at that time. Suitable arrangements entered into before midsummer will, therefore, be a good thing all around.

A product which has sold well in the Northwest this year is that of the Enterprise Mfg. Company, Columbiana, Ohio, whose automatic, high pressure, portable engines are being introduced extensively in the timber and mining districts. F. W. Bell, Minneapolis, is sales manager for this territory.

Work has been started at St. Croix Falls, Wis., on enlarging the hydroelectric plant of the Minneapolis General Electric Company, whose headquarters are in Minneapolis. This now has 10,000 kw. in turbines, furnished by the Platt Iron Works, Dayton, Ohio, which drive General Electric generators, and four new units doubling that capacity will be installed, together with considerable other equipment.

The city of Owatonna, Minn., will probably be in the market before long for new pumping machinery.

The construction of a power and lighting station to be operated by the city is proposed at Minot, N. D. Service has for some time past been rendered by the 300-kw. plant of the Minot Light & Telephone Company.

A new manufacturing plant, requiring power equipment, woodworking machinery and some tools for light metal work, will be built at Faribault, Minn., by Schimmel, Reid & Co. Ground has already been broken.

The Warren Machine & Iron Works Company, Warren, Minn., will erect another building, to be used for the present as a warehouse.

The Northfield Light, Heat & Power Company, Northfield, Minn., which is operating three alternating current generators of about 200 kw. capacity, engine driven, will improve and enlarge its power system. Definite plans embodying new equipment have, however, not yet been made.

Scherer & Strupp, Elkton, S. D., will install foundry equipment in an addition to their shop.

The Northern Heating & Electric Company, St. Paul, will add a motor generator set to the equipment of its power station.

The Wherland Electric Company, Morton, Minn., will order machinery for a new power plant. The building contract is about to be let.

Contract for the new municipal water works plant at Holdingford, Minn., including pumping station and an elevated steel reservoir, has been let to the Des Moines Bridge & Iron Company, Des Moines, Iowa, which is among the most active of present bidders for all work of that kind in this part of the country.

The Reliance Engineering & Equipment Company, Milwaukee, Wis., is figuring on a hydroelectric plant of 5000 hp. initial capacity, to be built near Missoula, Mont. A representative of the company states that correspondence with manufacturers of machinery for such plants is invited.

The contract for the new municipal power plant at Tyndall, S. D., which was expected to have been closed at this time, has not yet been awarded, as the bids submitted were not satisfactory to the local authorities. New tenders will be invited.

Some additional machinery will probably be required in the near future by F. R. Marrs, Wolford, N. D., for an addition to his planing mill.

The O. W. Fisher Company, Belgrade, Mont., has let contract for a large flour mill, in which an extensive line of power equipment and other auxiliary apparatus will need to be installed.

The city of Grand Forks, N. D., will install a Taylor underfeed stoker in connection with the new 250-hp. boiler for the municipal power plant.

A hydroelectric power station of 10,000 kw. is to be built on the Snake River by the Crane Falls Power & Irrigation Company, which has established headquarters at Mountain View, Idaho. Work on the development will begin at once, but machinery is not likely to be needed for some time. Future requirements will also include large motor driven centrifugal pumps.

The Keystone Driller Company, Beaver Falls, Pa., has taken contract for a deep well pump to be used in city water service at Caledonia, Minn. It will be driven by an automatic high speed Harris engine.

A new pumping unit of moderate capacity, probably to be motor operated, is needed for the municipal water works at Eveleth, Minn. Purchase has not yet been authorized.

The municipal power plant at Pelican Rapids, Minn., will be changed over to hydraulic turbine drive, leaving the engine now installed as a reserve machine, as soon as the necessary equipment can be provided.

The Seeger Refrigerator Company, St. Paul, Minn., has purchased the plant of the Bohn Mfg. Company in that city, the buildings of which contain an area of approximately 65,000 sq. ft. of floor space. The plant will be equipped for the manufacture of refrigerators and a sprinkling system installed.

Sealed proposals will be received by the Village Board of Petersburg, Neb., until June 10, for the construction of a water works system.

The Central West

DES MOINES, IOWA, May 23, 1910.

The demand for machinery and tools of all kinds becomes more diversified from one week to another, owing to the frequency with which new industries are being established all through this section of the United States. The majority of these plants are of small capacity, being located largely as the result of the efforts of the railroad companies and local advancement associations; but in the aggregate their needs are large. Second-hand equipment is in demand wherever its operating efficiency can be guaranteed. Central power and light stations, interurban electric lines and owners of large steam or gas engine plans for manufacturing service are still buying freely. In short, activity is manifested everywhere, with tendency to steadily develop. During the late summer and early fall the amount of money tied up in the movement of grain will have considerable influence on purchasing, but production of every nature will be likely to increase, rather than diminish, and the year is almost certain to close strong, with heavy machinery requirements for the period ensuing.

An element of trade which tends to force itself more and more to the front is the sale of drilling machinery, both for wells and quarry operations, the latter being now quite generally conducted with the heavy rigs originally used for the first named service. Several of the older houses had this territory almost to themselves for a number of years, but new concerns are now invading it with traveling representatives, as well as agencies located in cities such as Des Moines, Omaha, Denver and Salt Lake, and they all appear to be doing well. The requirements of the business are, in fact, increasing to such an extent as to render it probable that the facilities of manufacturers will be taxed to keep up with the demand. A peculiar factor in the situation is the apparent lack of second-hand rigs. Inquiry for such which was recently made by a Western equipment house failed to develop a single offering, although new outfits were obtainable for prompt delivery.

W. J. Pulford, one of the leading business men of Sioux Rapids, Iowa, has acquired complete control of the electric plant there, which has a present capacity of about 125 kw.,

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and will enlarge it by developing the available water power. He also contemplates the construction of a hydroelectric plant at Spring Valley, Minn. The machinery requirements involved in both projects will be considerable.

The contract for pumping machinery at Waterloo, Iowa, to replace the present equipment of the city water works, has been officially awarded the Snow Steam Pump Works, Buffalo, N. Y. There will be three horizontal crank and flywheel pumping engines, having a total capacity for 24 hours of 12,000,000 gal.

The generating station and distribution system of the Blair Electric Light & Power Company, Blair, Neb., which has a capacity of 150 kw., has been sold to the Bullock Public Service Company, which will extend and improve the plant.

The Gunnison Valley Power Company, Gunnisor, Utah, is completing plans for its new hydroelectric plant, including distribution system, and has begun to figure on equipment.

Bids will be taken until the second week in June on a 75,000-gal. elevated steel tank for municipal water service at Havelock, Neb.

Plans for a public pumping plant have been prepared at Bountiful, Utah.

A steam boiler of about 2000 hp. will be required in the near future by the McCue Lumber Company, Denver, Colo.

Some additional pumping machinery may be called for this season at Dows, Iowa, where improvements will be made in the water supply system, including extension of the existing mains.

From Rawlins, Wyo., it is reported that the Rawlins Stone Company will install a full line of new quarry machinery, including power and compressor outfits, with the object of greatly enlarging its operations there.

The Johnston & Sharp Mfg. Company, Ottumwa, Iowa, has had a large trade this season all through the West, including the Pacific Coast, and the output of the plant is gradually being extended to keep pace with the demand.

The Drake-Williams-Mount Company, Omaha, is erecting at the plant of the American Smelting & Refining Company an unusually high steel stack. It is 300 ft. high, with diameter tapering from 28 to 12 ft.

A gas generating plant, small compressor and steel holder will probably be required in the near future by the Ames Gas Company, which has been organized at Ames, Iowa, by H. L. Griffin. Mr. Griffin will act as secretary.

Morris Freshman and H. A. Wheeler, Beatrice, Neb., have been granted a site on the Blue River, 5 miles southwest of Beatrice, where a concrete dam will be erected and a hydroelectric plant installed.

The Chicago, Burlington & Quincy shops at Havelock, Neb., are nearing completion and will soon be ready for the installation of machine tools and shop equipment. A current budget of the company carries an item to cover the purchase of machine tools, and it is understood that data is being prepared by the mechanical department preparatory to issuing a list. The Burlington machine tool list which was issued about the first of the year, and is still pending in the market, did not include the requirements for the Havelock shops.

The Southwest

KANSAS CITY, Mo., May 23, 1910.

This is at the present time pre-eminently a dealers' market, and advices from other shipping centers of the Southwest, as far as El Paso, indicate that the same condition prevails throughout that territory. A great deal of ordering which was put off until after the spring elections is now being done in a bunch. This has apparently been caused by the fact that contractors, manufacturers, iron and steel fabricators and others who cater to municipal trade delayed entering upon needed improvements or additions until after they could get a line on the season's business. Since it developed that almost every bond issue submitted to the voters of cities, townships and counties was carried, the enormous needs of the Southwest in the way of public work have become apparent, and there is a rush to provide facilities for doing the business. Fortunately, contracts placed by local governing boards will be delayed by the present state of the bond market, which prevents realizing on new securities very quickly. The work to be executed will, therefore, be distributed over a comparatively lengthy period, with consequent gradual ordering of machinery and supplies, which is the best possible circumstance to insure a steady market.

The Western Iron & Foundry Company, Wichita, Kan., besides the regular custom work of its foundry, boiler shop and machining departments, has established a large trade in several important specialties. This season the concrete mixers and block machines of its manufacture have sold to especially good advantage.

Machinery will be needed in the near future for the new city power plant at Dodge City, Kan., construction of which has been authorized. The details have not yet been fully determined upon.

The Electric Light & Power Company, Newton, Kan., which operates two General Electric dynamos of 225 kw., engine driven, is preparing to install another unit, which will double the capacity of the plant.

Two air compressors for use in connection with deep well water service are to be bought shortly by the city of Dallas, Texas.

A power unit will be installed by E. F. Craven in the plant which he is erecting at Gravette, Ark.

The Moline Lime, Stone & Cement Company, Moline, Kan., will install considerable new machinery, having made extensive plans for the enlargement and improvement of its plant.

A municipal pumping plant and water works system will be constructed before fall at Inman, Kan., where an issue of bonds for the purpose has been authorized.

The Ruggles Red Granite Company has opened up a new quarry at Granite, Okla., for which some additional equipment will be required in the course of the present season.

The Galena Smelting & Mfg. Company, Galena, Kan., is providing for improvements in its water system, including a softening plant ordered from the Wm. B. Scaife & Sons Company, Pittsburgh, Pa.

The Kansas Gas & Electric Company has been formed in Kansas City, with $4,400,000 capital, to buy electric power and gas plants in a number of cities of this section, with the object of operating them more economically under one management.

The Gulf, Colorado & Santa Fe Railway has had plans prepared by its engineering department, Galveston, for a power plant to be erected at Cleburne, Texas. Equipment details have not yet been fully worked out.

The project for a municipal electric generating station at Bryan, Texas, heretofore referred to, will probably be carried out this summer.

An electric plant operated by the community will be installed at Safford, Ariz. Machinery has not yet been purchased.

The contract has been let at Jamestown, Kan., for building a public power and pumping station, and equipment will now be ordered.

A new pumping unit is to be purchased some time this year to double the capacity of the water distribution system at Frederick, Okla., which has a population of over 5000.

On account of the failure to complete sale of bonds at Searcy, Ark., the receiving of bids for equipment recently stated, including engine, dynamo, pumps, &c., has been postponed. Notice of the new date of letting contracts will be duly given.

It is expected that purchase of an elevated steel tank, pump and single phase alternating current motors for water works service at Huntsville, Mo., will be made some time in June. Tenders are invited up to June 5.

Construction of a pumping station will be undertaken in the near future by the municipal authorities at Republic, Kan.

The South St. Louis Foundry, St. Louis, Mo., is experiencing a very busy period, having found a considerably increased demand within the past month or more for power machinery, including hoisting engines used in mining work.

The building of an electric generating station to be operated by the municipality, with probable use of gas or oil engines, is under consideration at Howe, Okla.

One of the best gear cutting plants in this section is that of the Hervey Machine Works, Kansas City, which will quite likely be obliged to put in some additional equipment for that purpose before the end of the present year.

It is reported from Yoakum, Texas, that Steinman & Flint will build a factory there for the manufacture of washing machines. No equipment appears to have been ordered as yet.

It is reported, but without authorization, that a woodworking plant of considerable size will be erected in Texarkana by the Naples Hardwood Lumber Company; whether on the Arkansas or Texas side is not stated.

The Brush Electric Light & Power Company, Galveston, Texas, which has a power station of 4000 kw. capacity, including two modern steam turbine units, has placed contract for another 1000-kw. set, which the increased demands of the service urgently required. Other improvements are contemplated.

Work is to be completed by fall on new shops for the Marshall & East Texas Railway, at Marshall, Texas.

Work on the largest woodworking plant in this part of the country, which will not be finished before late in the fall, has been commenced by the Western Sash & Door Company, Kansas City. Machinery will not be needed until later on.

The project for municipal water works at El Paso, Texas,

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is rapidly coming to a head. If construction is authorized, as expected, it will mean the largest order for modern high duty pumping machinery ever let in the Southwest at a single time.

The Fort Worth Boiler Works, Fort Worth, Texas, a business formerly conducted as a copartnership, has incorporated with a capital stock of $10,000. The company has a fully equipped shop for manufacturing boilers, stacks, tanks or anything in the sheet iron line. A full stock of sheets, plates, angles, rivets, boiler flues, &c., is also carried.

The Adams Washer Company, Kansas City, has been incorporated and has taken over the manufacture of the Adams washer. The company is making arrangements for the erection of a plant at Kansas City, while later on two additional factories will be erected, one in the East and one in the far West. About $15,000 will be expended for wood and metalworking equipment to be installed in the plant at Kansas City.

The Atlanta Electric & Ice Company, Atlanta, Texas, organized with a capital stock of $20,000, has taken over the light plant now in operation at that place, to which will be added an ice plant, the equipment for which has been purchased. The company, however, is in the market for another dynamo to install a day circuit for fans, &c.

The Wichita Falls & Northwestern Railroad Company, Wichita Falls, Texas, has awarded a contract to the McCully Construction Company, St. Louis, Mo., for the construction of a roundhouse and machine shop at Wichita Falls, the equipment for which will be purchased by the railroad company.

George C. Christopher & Son, Wichita, Kan., are preparing plans for a new plant, which will consist of a foundry building, 45 x 120 ft.; structural shop, 45 x 210 ft.; machine shop, 45 x 100 ft., two stories, and a warehouse, 50 x 100 ft., two stories. All of the buildings will be constructed of concrete and steel and will be equipped with cranes and machinery for doing all kinds of structural work. The company will also install additional machinery in that department of its plant used for the manufacture of eclipse stone machines and mixers. The plant of the company is located at the corner of Ohio avenue and the Frisco Railway tracks, at which place the company owns a large site, which has a 335-ft. track frontage, for which the Frisco system has just completed a switch the entire length.

The Peet Brothers Mfg. Company, Kansas City, whose factory was destroyed by fire May 4, advise that the total loss will amount to about $650,000, which is practically covered by insurance, and that it is completing arrangements for a new site where it expects to build a larger and more modern factory, to be in operation by January of the coming year. The company has arranged for temporary quarters and hopes to be manufacturing by June 15.

The McCully Construction Company, St. Louis, Mo., is in the market for a concrete mixer and a clam shell bucket.

The Kansas City Vehicle Company, Kansas City, is erecting a new factory at a cost of $60,000, which will be equipped with machinery from an existing plant. Electric motors will be used for power at the new factory.

The city of St. Louis, Mo., E. E. Wall, engineer, is about to commence the preparation of plans for a one-story boiler house, to be erected at Bissell's Point at a cost of $200,000.

The Wm. J. Lemp Brewing Company, St. Louis, Mo., has had plans prepared for a two-story addition to its machine shop and office building, 25 x 115 ft., by G. T. Norton, architect, who is now receiving bids for its construction.

The Fred Messmer Mfg. Company, St. Louis, Mo., is making an addition to its plant and is in the market for a line of factory equipment, including a heating boiler, lockers and tool racks.

The North Pacific Coast

PORTLAND, ORE., May 18, 1910.

The demand for machinery used for, or in consequence of, hydroelectric power developments, is again prominent here, and the effect of work now under way, even if not supplemented by further projects of a similar kind, would be felt for months to come. Stimulus is being given to the trade by reason of the extraordinary activity in dam, penstock and plant construction at present going forward, as well as more advanced operations, such as the erection of steel carrying towers and the stringing of transmission lines from waterfalls to cities which the power companies will serve. Small generating sets driven by steam or gasoline engines, compressors, hoists, derricks, motors and very complete outfits for repair work have to be maintained for each of these developments, as well as the other equipment that is special to them. Frequent renewals are also demanded. Were all of this trade to be suddenly withdrawn, the market would be found to lose one of its strongest supports, particularly when one also considers the needs of the local shops that are directly engaged in supplying it.

The sales office of the United Iron Works, at Spokane, Wash., which represents the Ottumwa Iron Works, Ottumwa, Iowa, in that territory, has had a good run of inquiries this spring for electric hoists and steam hoisting engines to be used in development work. Installations for permanent mining operations are also increasing from one month to another.

The Doernbecher Mfg. Company, Portland, will install a large quantity of machinery for electric motor drive, including 500-hp. generator unit, exciter, switchboard, and about 75 alternating current motors.

The East Side Wire & Iron Works, Portland, Ore., has purchased a site for a new factory.

The Hood River Electric Light, Water & Power Company, which was recently organized to take over the 400-kw. hydroelectric plant at Hood River, Ore., is said to contemplate a further development, which will largely increase its capacity. No official announcement of such plans has, however, been made. The turbines now installed were furnished by the S. Morgan Smith Company, York, Pa.

A steam plant for heating and electric light service will be installed shortly by the Butte Falls Lumber Company, Butte Falls, Ore.

The offices formerly maintained in Seattle by the American Wood Working Machinery Company have been taken by the J. A. Fay & Egan Company of Cincinnati, Ohio, and will be in charge of B. G. Williams as manager for the North Pacific coast territory. Mr. Williams formerly represented the first named company and is thoroughly acquainted with the trade here. He will have the benefit of very complete stocks in warehouses at Seattle, Portland and Spokane, from which orders can be promptly filled.

The General Electric Company, Schenectady, N. Y., is installing a hydroelectric generating unit of 800 to 1000 kw. in the new Sanger power plant of the Eagle River Light & Power Company, Baker, Ore., which will furnish power to mills and factories in that vicinity. Current will be placed on the wires before fall.

An engine driven pumping plant and complete system of water distribution is required at Fort Ward, Wash., for the Government post.

Plans for enlargement of output, which will involve the purchase of considerable machinery, are under consideration by the Union Cooperage Company, Aberdeen, Wash.

In consequence of a large contract which has been taken for material to be used in the construction of the Government Dry Docks at Bremerton, Wash., the Index Granite Works, Index, Wash., is extending its facilities.

The Northwest Lumber Company is increasing its power equipment at the Kerriston, Wash., mills, and has just placed an order in the East for a 22 x 36 in. heavy duty Corliss engine to be belted to line shafting. A feature of this engine is the fact that it will have two flywheels, each 12 ft. in diameter and with 25-in. face.

It has been officially announced by the People's Portland Cement Company, whose main offices are in Sandusky, Ohio, that a cement plant equipped with three rotary kilns, each 150 ft. long, will be erected at Spokane, Wash. A large line of crushing, grinding, pulverizing and operating machinery, including power units and electric motors, will be needed.

A belted electric generating set of 150-kw. capacity, with motors and other power apparatus, will be added to the manufacturing facilities of the Campbell Mill Company, Redmond, Wash.

It is reported from Junction City, Ore., although without direct confirmation here, that the plant of the Howard Electric Light Company, which has only small capacity, has passed under the control of the Pacific Electric Engineering Company, Portland, and will be considerably enlarged.

The plant of the Yeomans Lumber Company, Pe Ell, Wash., has been destroyed by fire. A new mill, with probable equipment for electric drive, will be constructed at once.

The Walking Wheel Traction Company has been incorporated at Spokane, Wash., with a capital of $100,000, for the manufacture of agricultural machinery.

San Francisco

SAN FRANCISCO, CAL., May 18, 1910.

Most of the machinery business in this district at present consists of small or moderate orders of a widely miscellaneous character, with few important installations of any description. Machine tools and metal working equipment remain quiet locally. Labor conditions are unchanged, and no definite developments are expected before June 1. Neither the metal trades nor the labor unions have announced what action will be taken at that time, but there is every prospect

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of a disagreement which may result in a serious strike. Representatives of the San Francisco unions are endeavoring to induce the machinists of Seattle, Wash., to join the movement for the 8-hour day and the closed shop, but have so far been unsuccessful, and it is not anticipated that the difficulties experienced in this city will become general. In view of the uncertain outlook, local shops are withholding orders as far as possible, and purchases for other Coast cities are of moderate proportions.

The requirements of the oil industry are still large, calling principally for pumping equipment. Several new firms are entering that field, and a considerable demand for machine tools is expected to result. Many California and Nevada mines are also coming into the market for pumping machinery, air compressors, machine drills and ore crushing mills. The inquiry for mining machinery in general has revived noticeably since the first of the month, and recent bookings include several important orders for foreign shipment and for the Alaska gold mines. Heavy shipments of machinery are now being forwarded to the Alaska Treadwell mines and several gold dredgers are to be sent from San Francisco to the Nome district next month.

The manufacture of gas engines is an industry of increasing importance in San Francisco. The principal companies are the Standard Union, Atlas, Imperial and Doak in San Francisco and Oakland, and the Samson Iron Works at Stockton, Cal. Small gas engines are in strong demand for irrigation and mining purposes throughout California, and their use in connection with agricultural developments has increased rapidly. Many orders are also being placed for marine gas engines up to 150 hp., and builders of dredging machinery for mining and reclamation purposes have been actively in the market. The local gas engine manufacturers have also built up an extensive foreign trade, which now takes up a large proportion of their output.

The Shaw-Harrison Gas Engine Company has been incorporated at Stockton, Cal., with a capital of $250,000, by James and Belle H. Shaw, A. J. Harting, A. F. and W. H. Harrison.

The American Gas Engine Company, F. H. Coles, president, has purchased a block of land at Long Beach, Cal., for a factory site. A building is to be erected immediately and machinery installed for the manufacture of marine and hoisting engines.

H. P. Goodman of the Union Gas Engine Company, San Francisco, has been looking over the ground at Long Beach, Cal., with a view to establishing a southern branch.

The Yuba Construction Company is building a steel gold dredger for the Wild Goose Mining & Trading Company, Golovin Bay, Alaska. It will be the largest dredger ever built for Alaskan use, and will be equipped with a heating system to enable it to operate throughout the year. Power will be furnished by a 125-hp. Standard gas engine.

The Union Iron Works is building two gold dredgers for the Arctic Gold Dredging Company, to be used on Seward Peninsula, Alaska. They will be equipped with gasoline hoisting, pumping and electric light engines.

The California Hydraulic Engineering & Supply Company has moved its office from 523 Market street to 70 Fremont street, San Francisco.

The Union Oil Company will shortly build a pumping station at Ventura, Cal.

Los Angeles County, Cal., will sell a lot of old boilers and pumping machinery at auction, June 7.

Extensive additions are soon to be made in the Southern Pacific repair shops at Los Angeles, Cal.

W. W. Briggs, Pacific Coast superintendent of the Westinghouse Electric & Mfg. Company, has left for the East.

The California Core Drill & Pump Company has been incorporated at Los Angeles with a capital stock of $500,000, by L. R. Boyle, T. W. Staveet and W. G. French.

The Southern Pacific will install a machine shop at Porterville, Cal., for repair work on the motor cars which will be used in that district.

The Oil Tool Specialty Company has been incorporated at Coalinga, Cal., with a capital of $50,000, by Z. L. Phelps, J. M. Hendrickson, W. G. McCutcheon, S. D. Porter and J. J. Long. The company intends to erect a machine shop for the manufacture of oil appliances patented by California parties.

The Utah-Idaho Sugar Company, Salt Lake, Utah, is planning a large sugar factory to be erected at Richfield, Utah.

The Teziutland Copper Mining & Smelting Company has secured a concession to establish a 1400-hp. hydroelectric plant near Oaxaca, Mexico.

The Marysville Water Company, Marysville, Cal., is preparing to install a new pumping plant.

The building occupied by the Los Angeles Engine Works, Los Angeles, was destroyed by fire May 6.

It is announced that the Imperial Valley Oil & Cotton Company will install eight cotton gins at various points in Imperial Valley, Cal., this summer.

Gladding, McBean & Co., the largest terra cotta manufacturers of California, are making extensive additions to their factory at Lincoln.

The Orange Park Company, Los Angeles, Cal., has purchased a large engine and six pumps for irrigation purposes.

The Fruitvale Mine, near Grass Valley, Cal., will install a compressor, machine drills and other machinery.

The city of Sacramento, Cal., will probably be in the market soon for pumping machinery for the municipal water plant.

The Casa Grande Land, Power & Development Company, Florence, Ariz., has completed plans for a large pumping plant for irrigation purposes.

The Mount Shasta Power Company has purchased an air compressing equipment and machine drills to be used in boring a 7-mile tunnel near Wengler, Cal.

The Metropolitan Consolidated Gold Mining Company, Nevada City, Cal., intends to install a 40-stamp mill this summer.

The purchase of a lot of new machinery has been authorized for the La Coronado Mining Company, Phoenix, Ariz.

The National Ore Purchasing & Reduction Company, Rawhide, Nev., will install a 10-stamp mill.

Government Purchases

WASHINGTON, D. C., May 23, 1910.

The Constructing Quartermaster, U. S. Army, Boston, Mass., will open bids June 6 for the construction of an electric lighting system at Fort Andrews, Mass.

The Constructing Quartermaster, U. S. Army, Fort Logan, Ark., will open bids June 6 for one 150,000-gal. steel tank.

The Isthmian Canal Commission, Washington, D. C., will open bids June 27 for one twin-screw steel ladder dredge with a hopper capacity of 1200 tons.

The Bureau of Supplies and Accounts, Navy Department, Washington, opened bids May 17 for the following:

One lock corner machine—Bidder 2, American Wood Working Machine Company, Rochester, N. Y., $818.50; 26, J. A. Fay & Egan Company, Cincinnati, $1350 and $1300; 42, Manning, Maxwell & Moore, New York, $1410.

Class 32.—One dado machine—Bidder 2, American Woodworking Machinery Company, Rochester, N. Y., $656; 14, Cordesman-Rechtin Company, Cincinnati, $702.50; 26, J. A. Fay & Egan Company, Cincinnati, Ohio, $1100, $1150, $1170 and $1220; 42, Manning, Maxwell & Moore, New York, $570.

Class 33.—One double cut-off saw—Bidder 2, American Woodworking Machinery Company, Rochester, N. Y., $706.50; 9, Berlin Machine Works, Beloit, Wis., $930.25; 14, Cordesman-Rechtin Company, Cincinnati, Ohio, $944; 26, J. A. Fay & Egan Company, Cincinnati, $740.

Class 34.—One variety lathe—Bidder 15, C. H. Cowdrey Machine Works, Fitchburg, Mass., $240; 19, Drew Machinery Agency, Manchester, N. H., $209; 42, Manning, Maxwell & Moore, New York, $225.

Class 35.—One automatic wire straightener and cutting machine—Bidder 13, Chandler & Farquhar Company, Boston, Mass., $430; 42, Manning, Maxwell & Moore, New York, $360; 48, Prentiss Tool & Supply Company, New York, $383.28.

Class 36.—One class A Lovekin pipe expanding and flanging machine—Bidder 38, Lovekin Pipe Expanding & Flanging Machine Company, Philadelphia, Pa., $2000.

Class 62.—One bending forge and 20 blacksmith forges—Bidder 1, Anthony Company, New York, $6050; 40, Mire's Fuel Oil Equipment Company, Norfolk, Va., $2837 and $3542.

Verein Deutscher Ingenieure.—An illustrated pamphlet of 47 pages has been issued by the Verein Deutscher Ingenieure, the famous German engineering society, with headquarters at Berlin. It gives a history of the organization and traces its growth in the past 54 years. The pamphlet is issued primarily for distribution at the world's exposition at Brussels. The rapid growth of the organization, particularly in the last 15 years, is shown by a graphic chart. The founders were 23 engineers who met at Alexisbad, in the Hartz, Germany, May 12, 1856. To-day there are more than 1000 members for every one of the founders. The total May 1, 1910, was 23,592. It was planned from the beginning that branch or district organizations should be formed and there are now 47 of these.

Heyl & Patterson, Pittsburgh, Pa., are building a new ore bridge for Furnace C of the Youngstown Sheet & Tube Company, now being built at Youngstown, Ohio, and the bridge will also serve the proposed Furnace D, which the company expects to build next year.

New Publications

The Story of Coal and Iron in Alabama. By Ethel Armes. Cloth bound, 8vo; pages, 581 + xxxiv. Published under the auspices of the Chamber of Commerce of Birmingham, Ala. Price $5.

One American woman has gained some fame as the historian of a great industrial corporation in the United States. But her writing was of the polemic order, while Miss Armes has celebrated the achievements of Alabama captains of industry with abundant appreciation. This is an unusual book. It does not pretend to trace the growth of Alabama coal and iron industries on their technical side. The writer's purpose is rather to weave a fabric of romance about the bare framework of Alabama industry. The personal element is made prominent, for the author holds it "a mistake to divorce the business world from all the historical and really charming associations properly belonging to it. Fact and romance walk hand in hand." Moreover, "if ever an industry was set against a large background of stirring romance it is the coal and iron business of Alabama." We have already had "The Romance of Steel in the United States," and the making of many millionaires through the consolidations of 10 years ago has been described with no stinting of romance or appeal to the imagination. Why not now the romance of the iron trade of Alabama?

The pioneers of the Alabama coal and iron industries would be apt to say that there is much more charm in the narrative of what they did than in enduring the hardships, disappointments and repeated financial failures that are the groundwork of the picture as we find it to-day. The writer certainly tells the story with a charm of style that attracts and holds. We are told that three years of incessant labor were bestowed on the book and we can well believe it. The author with rare enthusiasm and interest has ransacked every record and interviewed every iron master and coal operator likely to afford authentic data. Emphasis is laid on the great debt modern Alabama owes to her pioneer workers, "who long ago had faith in her great resources and dreamed dreams that are now coming true. It meant fight to build their iron works; fight to make their iron; fight to carry it to market, and everlasting fight to get the money for it after it was sold." A good many men in the North have some recollections also of those fighting days of the Southern iron industry. Of course, the author could not have access to them and perhaps most of them have long ago forgotten their losses; but there is this tragic touch to the establishment of the iron industry in Alabama which never fails to suggest itself to the Northern reader.

A vast amount of personal reminiscence and local tradition has been included in the story and occasionally one finds difficulty in keeping on the trail; but coal and iron development is the burden of the story and perhaps the method of treating it is not so dissimilar after all to the industrial growth itself. There was nothing orderly about that, at least. It would be invidious to mention names, but none have been omitted of those who bore any part in bringing the Alabama iron industry to its present creditable status. The events of the past few years—the acquisition of the Tennessee Coal, Iron & Railroad Company in 1905, the important construction work that came in the next two years, and then the transfer of the property to the United States Steel Corporation, all are treated with a free hand, giving a narrative as entertaining as it is exact in its statements of fact. Some of the experiences of the Tennessee Coal, Iron & Railroad Company in the eighteen-nineties, particularly the hairbreadth escapes from receiverships, are material for a novel and the author has made the most of it.

The familiar Southern loyalty to Southern industry and faith in its future appear in the first sentence of the 10-page introduction to the book: "The State of Alabama is now generally regarded as the coming center of the iron and steel industry of North America and the Birmingham district as the ultimate rival of the Pittsburgh district." That is the Alabama confession of faith, but we may well doubt if the engineers and managers who have gone to Birmingham from Northern steel works have yet learned to twist their tongues to it.

It is fitting that the excellent work of the author should have its setting in so good a specimen of bookmaking, the volume coming from the University Press at Cambridge, Mass. The illustrations are numerous and admirable.

Strikes—When to Strike; How to Strike. 202 pages. Octavo. Bound in cloth. G. P. Putnam's Sons, publishers.

In this book, which appears in Putnam's "Questions of the Day" series, Oscar T. Crosby, engineer, traveler and publicist, analyzes the causes which lead up to strikes, and gives some good advice to both the buyer and seller of labor. Especially useful is his showing that the industrial conflict, generally speaking, is not between capital and labor, but between the workers who are led and the workers who lead. Valuable, too, is his counsel to every union to figure out in advance, and in terms of dollars and cents, the possible advantages to be obtained by a successful strike for higher wages, and, unless the result of such calculation shows a clear profit in case of success, to refrain from striking. As an example, he instances the case of a strike lasting three months and resulting in an increase of 10 per cent. in wages. Here the loss of wages during the strike period will eat up the 10 per cent. advance during a period of two years and a half; so that no advantage accrues to the strikers until after a lapse of time, during which entirely new circumstances may arise, rendering the strike sacrifice entirely unavailable. Mr. Crosby's statements are all clearly made and his analysis is for the most part sound. If he does not bear down as hard as he might on the lawlessness which is too often tolerated by the labor unions during strikes, or upon the indefensible practice of restricting individual output, it is perhaps that he does not wish to offend the wage-workers, to whom his book is chiefly addressed. The book itself will repay reading by all parties to labor disputes, actual or possible.

Supplement to the Directory of the Iron and Steel Works of the United States. Size, 6 x 9 in.; pages, 160. Bound in cloth. Publisher, American Iron and Steel Association, 261 South Fourth street, Philadelphia. Price, $6 per copy.

The American Iron and Steel Association has just completed a *Supplement* to its well-known *Directory to the Iron and Steel Works of the United States*, all information being brought down to March, 1910. The *Supplement* gives complete lists of the new plants that have been built and new companies that have been organized since the appearance of the 1908 *Directory;* also the most important changes in offices and officers of firms and companies that have taken place in the same time. It also contains complete lists of manufacturers of Bessemer steel, open hearth steel, crucible steel, steel castings, iron and steel rails, iron and steel structural shapes, iron and steel wire rods, iron and steel skelp, iron and steel plates and sheets, iron and steel black plates, and tin plates and terne plates. New features embrace complete lists of the manufacturers of billets and sheet and tin plate bars, muck and scrap bars, iron and steel merchant bars, rolled iron and steel concrete bars, and a list of the electric steel works of the country which have been completed or are building or projected.

The work will supply information greatly needed by the iron and steel trades. The past two years have witnessed many changes, and it is exceedingly desirable to have authentic data concerning them.

Programme for the Foundrymen's Convention at Detroit

The following programme has been prepared by Secretary Moldenke of the American Foundrymen's Association and Secretary Corse of the American Brass Founders' Association, in co-operation with the Local Committee, for the foundrymen's convention to be held at Detroit, June 6-10, in conjunction with the exhibition of the Foundry and Manufacturers' Supply Association. The sessions and the exhibits will be at the Michigan State Fair Grounds, which are 6 miles north of the business center of Detroit, reached by the Woodward avenue car line. The sessions for papers will be held in the Michigan Building, while the exhibits of foundry supplies and equipment will be housed in the Administration Building, the main building and Horticultural Hall. A tent is provided for the furnaces using oil as fuel. The programme gives the order not only of the business and technical sessions, but of the various events in the list of entertainments provided for the visitors:

OPENING SESSION, TUESDAY, JUNE 7.

10 *a.m.—Joint Session, State Fair Grounds, Michigan State Building:*

Addresses of welcome and response.
Presidential address, Arthur T. Waterfall, A. F. A.
Presidential address, Wm. R. Webster, A. B. F. A.
Secretary-Treasurer's report, W. M. Corse, A. B. F. A.
Secretary-Treasurer's report, Dr. R. Moldenke, A. F. A.
"Acetylene-Oxygen Repairs in the Foundry," by Steelman Stephenson, with an exhibition of the art as practically applied.

SECOND SESSION, TUESDAY, JUNE 7.

2 *p.m.—A. B. F. A.:*

"Fluxes as Applied to the Brass Foundry," by Erwin S. Sperry, Bridgeport, Conn.

"Use of Magnesium in Deoxidizing Aluminum Alloys," by H. M. Lane, Cleveland, Ohio.

3 *p.m.—A. F. A.:*

"Foundry Efficiency," by Benj. D. Fuller, Cleveland, Ohio.

"The Personal Equation in Accidents," by Thos. D. West, Cleveland, Ohio.

"The Permanent Mold," by Edgar A. Custer, Philadelphia, Pa. Illustrated with lantern slides.

Evening:

Smoker given by the Detroit Foundrymen's Association to the members of the allied associations at Light Guard Armory. Theatre party for the visiting ladies at the Temple. Parlor H of the official headquarters, Pontchartrain Hotel, has been reserved for the ladies and members of the Detroit Ladies' Committee will be in attendance at all times to give information and otherwise help the visiting ladies.

THIRD SESSION, WEDNESDAY, JUNE 8.

10 *a.m.—A. B. F. A.:*

"Brass Foundry Practice," by Jesse L. Jones, Pittsburgh, Pa.

"Electric Power Required to Melt Brass, Bronze, &c.," by Prof. J. W. Richards, South Bethlehem, Pa.

11 *a.m.—A. F. A.:*

Report of Committee on Chemical Standards for Iron Castings, by Dr. J. J. Porter, Cincinnati, Ohio.

"Physics of Cast Iron," by H. M. Lane, Cleveland, Ohio.

Wednesday Afternoon:

Pleasure boat ride on Detroit River, stopping at the Semet-Solvay coke oven plant and the blast furnaces of the Detroit Iron & Steel Company, and continuing down the river to the Livingston Channel Government work. For members and ladies. Wednesday evening is left free.

FOURTH SESSION, THURSDAY, JUNE 9.

10 *a.m.—A. B. F. A.:*

"The Value of the Association to Its Members," by Frank T. F. Stephenson, Detroit, Mich.

"Co-operative Courses in Metallurgy," by Dr. J. J. Porter, Cincinnati, Ohio.

11 *a.m.—A. F. A.:*

"The Shockless Jarring Machine," by Wilfred Lewis, Philadelphia, Pa.

"Rejected Castings in Steel Foundries," by S. D. I. Emerson, New York.

"Reward, Premium or Bonus," by W. J. Power, New York.

Report of Committee on Industrial Education, by P. Kreuzpointner, Altoona, Pa.

FIFTH SESSION, THURSDAY, JUNE 9.

2 *p.m.—A. B. F. A.:*

"Modern Foundry Progress," by Chas. T. Bragg, Mansfield, Ohio.

"Mounting Patterns on Molding Machines," by Hugh McPhee, Tarrytown, N. Y.

"Electric Furnaces for Melting Non-ferrous Alloys," by A. L. Marsh, Detroit, Mich.

3 *p.m.—A. F. A.:*

"Overhead Transportation for the Foundry," by A. W. Moyer, Philadelphia, Pa. Illustrated with lantern slides.

"The Electric Furnace," by H. M. Lane, Cleveland, Ohio. Illustrated with lantern slides.

"Foundry Transportation Methods," by David Gaehr, Cleveland, Ohio.

"Suggested Specifications for Foundry Coke," by Dr. R. Moldenke, Watchung, N. J.

Ladies' Entertainment, 2 to 7 p.m.:

Automobile sightseeing trip through Detroit, leaving at Hotel Pontchartrain. Luncheon at the Yacht Club.

SIXTH SESSION, FRIDAY, JUNE 10.

10 *a.m.—A. B. F. A.:*

"Analysis of Lead in Brass Alloys," by C. P. Karr, New York.

"Cost and Cost Systems Applied," by C. R. Stevenson, New York.

Unfinished business, election of officers, new business.
Adjournment.

10 *a.m.—A. F. A.:*

Discussions on "Continuous Conveying Systems" and the "Foundry Mixer."

Unfinished business, election of officers, new business.
Adjournment.

It is announced that the above programme is subject to change. It may be enlarged by reason of papers coming in later or shortened to five sessions if this can be done without cutting off discussion.

C. E. Hoyt, secretary of the Foundry and Manufacturers' Supply Association, is now at Detroit, and will remain until after the convention. Correspondence should be addressed to him at the Hotel Cadillac. As has already been indicated, the exhibits will be by far the most extensive ever seen at a similar convention, and for the inspection of the various machines under operation hundreds of foundry superintendents and foremen will be in attendance. Special arrangements are being made to facilitate visits to Detroit foundries. The committee in charge of this feature of the entertainment is having maps prepared showing the location of the various plants that will be open to visitors.

The Bethlehem Steel Company's Strike Ended

The strike at the works of the Bethlehem Steel Company, South Bethlehem, Pa., which began February 4, and which was energetically carried on for weeks with the support of the American Federation of Labor, was formally declared off May 18. Ex-Congressman J. Davis Brodhead, representing the men, had been in conference with President Schwab, and as a result certain conditions were laid down under which the men might return to work. These conditions were at first rejected by the Executive Committee of the strikers, but on May 18 another meeting was held and resolutions were passed reciting the desire of the strikers to return to work and accepting the conditions. These were repeated in the resolutions and are as follows:

1. All the men of all the crafts may return to work within, say, 30 days, as near their old places as possible, excepting the individuals who did injury to the works or attacked the integrity of the company.

2. At all times workmen of the Bethlehem Steel Company shall be at liberty individually or collectively as workmen of the company and not as representatives of organized labor to approach the president or officers upon any subject of a general nature.

3. Overtime and Sunday time to be optional with the men.

4. Apprentices to be taken back under general rule and restored to their full standing as to time, and if upon completion of their full term they have given satisfaction to their foremen and superintendents they shall, upon the foremen's recommendation, receive diplomas and bonus and all benefits accruing from regular apprenticeship system.

The resolutions were signed by a representative of the men in each of the departments involved in the strike; namely, machinists, molders, patternmakers, engineers, cranemen, electricians, blacksmiths and hammer men. Since the beginning of the strike hundreds of employees of the company have left South Bethlehem to take positions elsewhere.

A 3000-Kw. Turbo Alternator

An Important Low Pressure Installation at McKeesport, Pa.

Plans have been completed for an interesting power installation at the National Works, McKeesport, Pa., of the National Tube Company. The power plant now contains four vertical cross compound steam engines (22 and 44 in. by 42 in., 95 rev. per min.), each direct connected to a 625-kw., direct current, 240-260 volt Crocker-Wheeler generator and two blast furnace gas engine units, each having four cylinders 32 x 42 in., and having a capacity each of 1200 kw., direct current, 240-260 volts. The gas engines are Allis-Chalmers make, 110 rev. per min., and the generators are Crocker-Wheeler. The total rated capacity at present is thus 4500 kw. Additional gas engine units and high pressure steam turbines were considered, but the fact that exhaust steam was available from two non-condensing engines at the slabbing mill and one at the blooming mill, which under some conditions of rolling would provide sufficient exhaust steam and at nearly all times would provide a very large part of the steam needed by the turbine decided in favor of the low pressure turbine.

The current adopted for the low pressure plant is three-phase, 25-cycles, 6600-volts; motor generators were also chosen in preference to stepdown transformers and rotary converters. A single 3000-kw. turbo-alternator was selected in preference to two 1500-kw. units on account of local conditions and efficiency.

The proposed improvents are in brief as follows: A 3000-kw. (80 per cent. power factor) Curtiss turbine alternator set (General Electric Company), one (of three) 1000-kw. snychronous motor generator set (General Electric Company), one turbo-exciter (250 volts), one direct current switchboard and one alternating switchboard will be installed in a new building to be located between the blooming mill and slabbing mill shear table sheds. This building (with the exception of the 24-in. I-beam crane runways) will be constructed entirely of steel and concrete with metal window frames and sash. The frame will be of steel tubings. There will be a concrete basement in which the cables will be carried in conduits.

The exhaust steam from the 36 x 48 in. and 46 x 60 in. slabbing mill engines, from the 50 x 60 in. blooming mill engine, and from the 29 x 50 x 60 in. and 42 x 72 x 60 in. converting mill blowing engines will be conveyed through steel welded pipes to three 9 ft. 6 in. by 43 ft. American steam regenerators (located close to the turbine), and thence through a 30-in. pipe to the turbine. One of the converting mill blowing engines will be so connected that when the exhaust steam is not required by the turbine the engine exhaust can be turned into the condenser at the blast furnace blowing engine house. The turbine exhaust will pass through a 63-in. diameter exhaust connection to a Weiss barometric condenser designed to furnish 26 in. of vacuum with 75 degrees F. cooling water and 150,000 lb. of steam per hour. As the amount of steam used by the turbine at full load is only about 100,000 of steam per hour, and the cooling water temperature rarely continues for any period at 75 degrees F., it is expected that there will be no difficulty in maintaining a vacuum of 27½ in. or better throughout most of the year.

Since the waste water from the blast furnaces is already being used for condensing purposes, it was necessary to provide additional pumping capacity, and two 16-in. centrifugal pumps, driven by motors at 220 volts, are to be installed in a new concrete pump pit.

Two motor generator sets, 1000 kw. each, will be located in a one-bay extension to the power house, and the direct current switchboard will be altered to take care of the additional 2000 kw. The transmisison lines from the low pressure station to the main power house will be approximately 2600 ft. long.

The N. & G. Taylor Company Purchases Maryland Plants

Official announcement is made that the N. & G. Taylor Company, Philadelphia, manufacturer of tin plate of all kinds, has purchased from H. H. Dickey and his associates, of Cumberland, the plants of the Maryland Tin Plate Company and Maryland Sheet & Steel Company. The N. & G. Taylor Company has for many years been lessee of these properties, the product of the works being used largely to supply the company's tin plate plant at Philadelphia with the special quality of black plate it requires. To enable it to make some extensive improvements as owner which it could not afford to do as lessee, the company has purchased both plants outright, the formal transfer to take place August 1. Before that time the Maryland Tin Plate Company will be consolidated with the Maryland Sheet & Steel Company, under the name of the latter, with the following officers: Nathan A. Taylor, president; H. W. Taylor, vice-president; H. N. Taylor, secretary and treasurer.

During the occupancy of the present lessee various improvements and additions have been made to the steel plant, equipping it completely for the manufacture of black plate of the highest grade. The present equipment comprises open hearth furnaces, bar and billet mills, black plate mills, sheet mills, foundry, machine shop, copperas plant, box factory, &c.

The N. & G. Taylor Company has been connected with the plant in one way or another for the past 18 years—the past 10 years as lessee in actual operation of it, and during the preceding eight years—1892 to 1900—bought on yearly contracts the majority of its black plate output. The works employ 550 men, giving steady occupation to a considerable proportion of the adult male population of South Cumberland. The works are running in all their departments on full time. The marked increase in the business of the company, as shown by orders already in hand, will require the maximum output for some time to come.

No general improvements are required, as the plants are in thoroughly up-to-date condition; but it is understood that additions are planned to increase the capacity of several of the departments, made necessary by a larger demand for the company's products.

L. L. Helmer will continue as general manager of the works, with John M. Smith as paymaster. Henry J. Eirich and Howard Brinkman will remain as superintendents of the sheet steel and black plate departments, respectively; Dan Williams of the open hearth department and E. J. Malloy of the bar and billet mills.

The present year marks the one hundredth anniversary of the founding of this house; whose products —particularly its high-grade roofing tin—have come to be known to the sheet metal working trade in all parts of the United States. This specialty, known as the Target and Arrow brand of roofing tin, represents the same durable quality that this house has supplied to American tin roofers for more than 60 years.

The Keystone Bronze Company, Thirty-ninth street and Allegheny Valley Railroad, Pittsburgh, has purchased adjoining real estate, consisting of a plot 25 x 110 ft. This space is now being used for storing material, but later in the year will likely be used as an extension to the present plant. The company is busy turning out blast furnace tuyeres, bosh plates, furnace equipment, open hearth water cooling devices, &c., and has some excellent contracts in hand from iron and steel works that will enable it to continue active operations for some time.

Concrete Bar Specifications

Standard Specifications Governing the Chemical and Physical Properties of Concrete Reinforcement Bars as Adopted by the Association of Steel Manufacturers

It is noteworthy that the Association of Steel Manufacturers, which was the first to formulate a specification for structural steel—the well-known Manufacturers' Standard—should also be the first technical body to create a specification for this newer form of material of construction—the concrete reinforcement bar. Following are the standard specifications just issued, copies of which can be had free from Jesse J. Shuman, secretary, care Jones & Laughlin Steel Company, Pittsburgh, Pa.:

Manufacture

1. Steel may be made by either the open hearth or Bessemer process. Bars shall be rolled from billets.

Chemical and Physical Properties

2. The chemical and physical properties shall conform to the following limits:

Properties considered.	Structural steel grade. Plain bars.	Structural steel grade. Deformed bars.	Hard grade. Plain bars.	Hard grade. Deformed bars.	Cold twisted bars.
Phosphorus, maximum:					
Bessemer	0.10	0.10	0.10	0.10	0.10
Open hearth	0.06	0.06	0.06	0.06	0.06
Ultimate tensile strength, pounds per square inch	55,000 to 70,000	55,000 to 70,000	80,000 min.	80,000 min.	Recorded only.
Yield point, minimum, pounds per square inch	33,000	33,000	50,000	50,000	55,000
Elongation, per cent. in 8 in., minimum	1,400,000 / T. S.	1,250,000 / T. S.	1,200,000 / T. S.	1,000,000 / T. S.	-5 %
Cold bend without fracture:					
Bars under ¾ in. in diameter or thickness	180° d. = 1t.	180° d. = 1t.	180° d. = 3t.	180° d. = 4t.	180° d. = 2t.
Bars ¾ in in diameter or thickness and over	180° d. = 1t.	180° d. = 2t.	90° d. = 3t.	90° d. = 4t.	180° d. = 3t.

The hard grade will be used only when specified.

Chemical Determinations

3. In order to determine if the material conforms to the chemical limitations prescribed in paragraph 2 herein, analysis shall be made by the manufacturer from a test ingot taken at the time of the pouring of each melt or blow of steel, and a correct copy of such analysis shall be furnished to the engineer or his inspector.

Yield Point

4. For the purposes of these specifications, the yield point shall be determined by careful observation of the drop of the beam of the testing machine, or by other equally accurate method.

Form of Specimens

5. (a) Tensile and bending test specimens may be cut from the bars as rolled, but tensile and bending test specimens of deformed bars may be planed or turned for a length of at least 9 in. if deemed necessary by the manufacturer in order to obtain uniform cross section.

(b) Tensile and bending test specimens of cold twisted bars shall be cut from the bars after twisting, and shall be tested in full size without further treatment, unless otherwise specified as in (c), in which case the conditions therein stipulated shall govern.

(c) If it is desired that the testing and acceptance for cold twisted bars be made upon the hot rolled bars before being twisted, the hot rolled bars shall meet the requirements of the structural steel grade for plain bars shown in this specification.

Number of Tests

6. At least one tensile and one bending test shall be made from each melt of open hearth steel rolled, and from each blow or lot of 10 tons of Bessemer steel rolled. In case bars differing ⅜ in. and more in diameter or thickness are rolled from one melt or blow, a test shall be made from the thickest and thinnest material rolled. Should either of these test specimens develop flaws, or should the tensile test specimen break outside of the middle third of its gauged length, it may be discarded and another test specimen substituted therefor. In case a tensile test specimen does not meet the specifications, an additional test may be made.

(d) The bending test may be made by pressure or by light blows.

Modifications in Elongation for Thin and Thick Material

7. For bars less than 7-16 in. and more than ¾ in. nominal diameter or thickness, the following modifications shall be made in the requirements for elongation:

(e) For each increase of ⅛ in. in diameter or thickness above 1 in., a deduction of 1 shall be made from the specified percentage of elongation.

(f) For each decrease of 1-16 in. in diameter or thickness below 7-16 in., a deduction of 1 shall be made from the specified percentage of elongation.

(g) The above modifications in elongation shall not apply to cold twisted bars.

Number of Twists

8. Cold twisted bars shall be twisted cold with one complete twist in a length equal to not more than 12 times the thickness of the bar.

Finish

9. Material must be free from injurious seams, flaws or cracks, and have a workmanlike finish.

Variation in Weight

10. Bars for reinforcement are subject to rejection if the actual weight of any lot varies more than 5 per cent. over or under the theoretical weight of that lot.

Commercial Rust Proofing

The Bradley Rust-Proofing Company, 35-37 Ferris street, Brooklyn, N. Y., has equipped a plant to work under J. J. Bradley's patents, and is now prepared to treat articles of wrought iron, gray and malleable castings, steel stampings, drop forgings, &c., to resist rust.

The Bradley process is a hydrogen gas treatment. The article to be rust-proofed is placed in a muffle, where it comes in contact with hydrogen gas and other materials necessary to the process, and then subjected to heat. This changes the surface, forming an alloy which resists the action of oxygen in air or water. This process can be used on bolts, nuts or other threaded articles, as there is no interference with the threads, which is one of the drawbacks of plating of any kind. In addition to the rust-proofing, the articles which are treated are benefited by the careful cooling, which anneals them. The process cannot be used on hardened or tempered pieces, because of the heat. The color obtained is a dark, rich, blue black, well adapted for builders' hardware or for other articles of a highly finished character. Articles which are thus treated require merely a brush, soap and water to clean them.

The April business of the Garland Corporation of Pittsburgh was the largest of any April in its history. Sales increased 25.32 per cent. over the same month in 1909, and not less than 61.64 per cent. over 1908. All departments at West Pittsburgh are operating to full capacity.

The New Plant of B. F. Avery & Sons, Inc.

A Great Southern Manufacturing Enterprise

The 11 brick, steel and concrete main buildings composing the new plant of B. F. Avery & Sons, Inc., Louisville, Ky., are now complete, and the company has begun the installation of the machinery and equipment. The task of moving from the old works will begin June 1, and it is expected that the new plant will be in full operation by August 1, 1910, just one year after ground was broken for its erection. The officers of the company claim that it will then have the best equipped manufactory for plows and cultivating implements in the world, and one of the largest. All the buildings are practically fireproof, and with few exceptions are one story, all of the manufacturing being done on the ground floor. The roof supports are of structural steel, rising from the concrete floors.

The plant is located on Seventh street, at the crossing of the Southern Railway, and is directly upon the city limits. It occupies a tract of 35 acres. Spur tracks from the Southern Railway and the Illinois Central Railroad penetrate and almost encircle it.

From the power house a concrete tunnel, sufficiently large to admit workmen to walk through erect and work therein with freedom, extends to every department of the plant. In this tunnel are carried all of the hot and cold water pipes, steam heating pipes, compressed air pipes, drainage pipes, and all electric light and power wires; also intercommunicating shop telephone wires. Separate motors are provided for the various machines or small groups of machines in the several departments, so that the generator in the engine room is enabled to conserve and exert the utmost efficiency in meeting the demands of the various shops.

All the buildings are equipped with Grinnell automatic sprinklers, the sprinkler heads being arranged to furnish instantly a volume of water at every interval of 10 ft. throughout the plant. Hydrants fitted to receive the hose of the fire department are freely distributed at convenient distances in all of the yards and open spaces, with an abundant supply of standard fire hose in position. Each building is separated from the others by ample and uniform courts 45 ft. wide, admitting of ventilation and space for security against the spread of fire. All the buildings are steam heated and electrically lighted.

The warehouse, which has five floors, will easily hold 150 carloads of plows and implements on each floor, or a total capacity of 750 carloads without any crowding. It will hold 1000 carloads with ordinary crowding. The five elevators which are arranged to conveniently tap every part of this warehouse, along with the other complete arrangements and equipment, insure the loading of cars and dispatching of all shipments with ease and promptness.

Complete dust-conveying systems are provided for conveying the shavings from the wood department to the boiler furnaces and for conveying the dust from the grinding and polishing rooms. The machinery and equipment in each department are of the most effective type. The most modern and convenient toilet arrangements are distributed throughout the plant. A feature is the sanitary fountains for drinking water, which are installed at intervals in all of the shops, and which eliminate the menace of the public drinking cup.

A noticeable feature of the plant is that, with the exception of the smoke stack at the power house, there are no chimneys, a perfect system having been installed in the forge shop for conveying the smoke, gases and fumes from the furnaces out of the buildings by an underground system, and all of the machinery being electrically driven. There is sunlight in every nook and corner and no dust or smoke anywhere, while the amplest electric lighting facilities will take care of dark days and nightfall.

Benjamin Franklin Avery was born in Aurora, N. Y., in 1801. Started a plow factory at Clarksville, Va., in 1825. Removed the business to Louisville, Ky., in 1845. In 1861-1865, during the Civil War, the factory was used as a military hospital by both armies. Admitted his sons in 1865, under the style of B. F. Avery & Sons, as at present. He died in 1885. Throughout the 85 years from 1825, when B. F. Avery founded the business, up to the present, he or one of his sons has been at the head of the business, his second son, George C. Avery, being now and for about 20 years past the president of the corporation of B. F. Avery & Sons, which succeeded the copartnership of the same name in 1877.

The company is one of the pioneer manufacturers in the export trade, and sends its travelers not only into nearly every State in the Union, but into nearly every farming district around the globe, with the result that its plows and other implements are used wherever soil is plowed and cultivated, at home or abroad.

Reciprocity Opinion in Canada

TORONTO, May 21, 1910.—The advances by the United States Government for the opening of negotiations in the matter of commercial reciprocity with Canada have made the question a live one on this side of the line. In eastern Canada the idea is generally opposed, and in western Canada it is rather favorably received.

Eastern Canada—which term includes Ontario, Quebec and the Maritime Provinces—is convinced that, economic conditions in Canada and the United States being what they at present are, reciprocity, of whatever degree or form, would benefit the United States and not benefit, but probably injure, Canada. Canada has stores of raw materials and has a market of progressive expansion. The United States manufacturers are held to be naturally desirous of obtaining access to these, and Canadian manufacturers are no less naturally and keenly desirous of excluding their American competitors from further privileges either as sellers of finished product here or buyers of material. The policy followed in Ontario and Quebec, and now being considered in New Brunswick, of prohibiting the exportation of crown lands pulpwood from the country is strongly approved by the Canadian manufacturers, whose association has recommended by resolution the still more "thorough" course of a high Dominion export duty on pulpwood exports from any province, whether the wood is grown on crown land or on private land. A like policy has been advocated on nickel matte and on mattes of silver and associated metals. There is undoubtedly a strong public sentiment in eastern Canada in favor of utilizing the country's raw materials—whose conservation is now being urged—in domestic industries. Even if the United States were to make concessions on Canadian manufactured goods it would not be considered an inducement to give freer entry to United States manufactures into Canada, as it is realized that it would be next to impossible to sell Canadian manufactured goods profitably in the United States in any tariff circumstances. The cry in the East is now "Canada for the Canadians."

Canadian manufacturers and protectionist politicians and newspapers, who think they read the signs right in the United States, express the conviction that there will be a general lowering of the tariff there in the early future, and that it is therefore unnecessary for Canada to do any negotiating in order to secure concessions in the United States market.

American Branches in Canada

It is asked, Why should there be a change in favor of the United States? That country keeps on gaining trade here far more rapidly than any other country,

and it sells Canada goods of a total value equal to more than twice that of the goods sold by Canada to the United States. While, say the manufacturers, this is unsatisfactory to Canada, there is a large favorable item in the account, that, namely, expressing the value of the American manufacturing enterprises established in Canada in consequence of the tariff. According to an estimate lately made upward of $300,000,000 of American capital is invested in Canadian industrial undertakings. It is urged that the sound national policy is the adoption of measures to increase these commitments, and add to the country's manufacturing plants. The pulpwood legislation and similar measures that are mentioned, along with increases of duty on certain articles, are approved from this point of view.

A text from which much preaching of this kind is done is the arrangement just entered into for the bringing to Hamilton of a branch of the Oliver Chilled Plow Company, whose main works are at South Bend, Ind. The company has secured 90 acres of land in the city and on this it will erect its plant. It is to employ 2000 hands and will operate its works by hydroelectric power, supplied by the Dominion Power & Transmission Company. These plow works, it is said, will be the greatest in the British Empire. The cost of the plant and equipment is placed at $1,500,000. The company asked and is obtaining no special privileges. It considered Hamilton a convenient point in which to establish a plant to make plows for this developing agricultural country. It thus has free access to this great and expanding demand and has protection against competitors from outside.

In western Canada the idea of reciprocity with the United States is well received. Though cities have sprung up rapidly in the prairie country, the balance of interests is overwhelmingly agricultural, for, besides the agricultural population itself, there is a very large iron manufacturing element in the cities whose welfare is bound up with that of the farmers. The West wants cheap manufactured products and will welcome any enlargement or facilitating of the supply.

C. A. C. J.

The National Association of Manufacturers

In addition to the resolutions given in *The Iron Age* of May 19 in the partial report of the proceedings of the fifteenth annual convention of the National Association of Manufacturers held in New York City last week, the following resolutions relating to the several subjects named therewith were adopted:

Merchant Marine

That the association recommends to Congress the passage of a bill like that under consideration in Congress, and advocated by President Taft, providing for sufficient postal compensation to establish a swift and regular service in American steamships to the principal countries of South America, and to the ports of Australasia, Japan, China and the Philippines.

Industrial Indemnity Insurance

1. That the National Association of Manufacturers approves voluntary sickness and old age relief in private employment and authorizes its officers to encourage it by all reasonable means.

2. That it disapproves compulsory sickness and old age relief in private employment, and authorizes its officers to oppose it by all reasonable means.

3. That it urges the president and Board of Directors to appoint a new committee to deal with these subjects in a comprehensive and systematic fashion. It urges the new committee to gather additional information, home and abroad, with a view of aiding members in establishing individual relief systems or establishing mutual or other suitable insurance. Schemes for dealing with these problems are in process of constant development, and it should be made possible, through our association's efforts, for our members to become and remain thoroughly informed.

Bankruptcy

That the National Association of Manufacturers holds itself in readiness to co-operate with the industrial and commercial organizations which seek to keep this law (National Banking Act of 1898, as amended by what is known as Sherley Bill) in force and amended as circumstances require until it becomes the safeguard of commercial pursuits.

Court of Appeals for Patent Suits

That the National Association of Manufacturers gives the pending measures, Senate Bill 4982 and H. R. Bill 14622, its approval, and urges upon Congress the speedy enacting of these measures for the creation of such Court of Appeals.

Uniform State Laws on Contracts of Conditional Sale

That this subject be referred to the proper standing committee, if such committee exists, and if not to be appointed by the chair, to investigate the whole subject and ascertain what can be done toward making the laws uniform and simple in their application, and to report to this body at its next meeting.

Consular Reform

That we recommend and cordially approve the efforts made and being made by the American Embassy Association of New York City in the matter of procuring legislation to establish suitable residences abroad for our diplomatic representatives.

International Peace

That we record our approval of the wise proposal of our Government recommending that the International Prize Court be vested with the functions of a court of arbitral justice.

That we heartily indorse the sentiment of international amity which seeks the substitution of judicial methods for force in the settlement of international controversies.

To the Memory of James W. Van Cleave

That in the death of our honored and beloved ex-president, James W. Van Cleave, our association has lost one of its most valued members and our country one of its best citizens, a man of character, of principle and of power. With the instincts of a patriotic nature, with the courage of his convictions, and with the spirit of self-sacrifice, he gave his life to the cause of American liberty in that he fought for the preservation of the foundation of our institution based upon the highest of human ideals—equal rights for all. He was a man without guile. His family was first in his deep affection, then his friends and then those who, through regard and confidence, had honored him and themselves by his repeated election to the presidency of this association. But his ardent love and his loyal friendship did not outweigh his knightly impulse of being a gallant fighter for impartial justice. May his career be emulated by all true lovers of humanity; and may the memory of his battles for the rights of man be recorded in the pages of history in these words:

No rancor ever shaped his blow;
He made the wrong, and not the man, his foe.
He struck most keenly, but not in wrath;
That truth might travel, he cleaved a path.

Tribute to President John Kirby, Jr.

That the delegates gathered at this convention express their appreciation and admiration for the dignity, courtesy and ability with which our president, John Kirby, Jr., has presided over its deliberations.

That we register our gratitude for the zeal, enthusiasm and devotion to duty with which he has so successfully administered the affairs of the association during the past year, and the loyalty with which he has dedicated his time and labors to the principles for which this association unalterably stands.

The Officers Chosen for the Coming Year

The convention unanimously re-elected John Kirby, Jr., president, and F. H. Stillman treasurer. Following is the new Board of Directors:

John Kirby, Jr., Dayton Mfg. Company, Dayton, Ohio.
F. H. Stillman, Watson-Stillman Company, New York City.
J. G. Battelle, Columbus Iron & Steel Company, Columbus, Ohio.
H. S. Chamberlain, Citico Furnace Company, Chattanooga, Tenn.
George T. Coppins, Walworth Mfg. Company, Boston, Mass.
C. C. Hauch, Nordyke & Marmon Company, Indianapolis, Ind.
Charles M. Jarvis, American Hardware Corporation, New Britain, Conn.
Henry B. Joy, Packard Motor Car Company, Detroit, Mich.
H. E. Miles, Racine-Sattley Company, Racine, Wis.
Ludwig Nissen, Ludwig Nissen & Co., New York City.
William H. Parlin, Parlin & Orendorff Company, Canton, Ill.
David M. Parry, Parry Auto Company, Indianapolis, Ind.
Enos Paullin, Ferracute Machine Company, Bridgeton, N. J.
C. W. Post, Postum Cereal Company, Battle Creek, Mich.
Daniel C. Ripley, Ripley & Co., Pittsburgh, Pa.
F. C. Schwedtman, St. Louis, Mo.
Giles H. Stilwell, H. H. Franklin Mfg. Company, Syracuse, N. Y.
D. A. Tompkins, D. A. Tompkins Company, Charlotte, N. C.

The board re-elected J. P. Bird general manager and George S. Boudinot secretary, with offices at 170 Broadway, New York City.

Personal

David Spence, superintendent of the Essex Foundry, Newark, N. J., has resigned to take charge of the foundries of the new plant of the Dayton Motor Car Company at North Dayton, Ohio.

Clyde M. Carr, vice-president of Joseph T. Ryerson & Son, Chicago, sailed for Europe May 21. He will be abroad for two months.

Maximillian Herrmann, professor of the Royal College of Mines, Hungary, and Francis Vnutsko and Francis Bohm, mining engineers connected with the Hungarian Government, are now in this country studying the natural gas fields. They constitute a commission appointed by the Government and have credentials from the Prime Minister of Hungary asking Government officials here that they be given all possible information on the use of natural gas. They state that recently, while boring operations were being made in Transylvania, in the hope of finding salt deposits, a large supply of natural gas was struck, and it is with a view to utilizing and conserving the supply that the commission was sent to this country. Accompanying the commission is G. A. Pattantyus, an electrical and mechanical engineer of Budapest, who is interested in the discovery and came here on his own account.

James D. Robertson, sales agent of the Pittsburgh Valve, Foundry & Construction Company since 1903, has resigned, to take effect June 1, when he will become manager of the sales department of the Pittsburgh Piping & Equipment Company. The latter company has been in business for seven years, during which time it has installed important pipage systems in some of the largest industrial plants in the country. It is now building a large addition to its machine shop on Smallman street, near Thirty-fourth street, Pittsburgh, to increase its manufacturing facilities. John B. Robertson, also connected with the Pittsburgh Valve, Foundry & Construction Company, has resigned his position, taking effect June 1. Charles R. Rhodes, general manager of the Pittsburgh Valve, Foundry & Construction Company, will be temporarily in charge of its sales department.

Dr. R. B. Owens, until recently electrical engineer with the Southern Power Company, at Charlotte, N. C., has accepted the appointment of secretary of the Franklin Institute, Philadelphia, Pa., made at a recent meeting of the Board of Managers. His coming to the institution is looked upon as a valuable acquisition, inasmuch as he has a wide reputation as an instructor along engineering lines and has written a number of books on discoveries that he has made. He was born in Maryland in 1870, graduated at Charlotte Hall Military School in 1886, then allied himself with the Baxter Motor Company, Baltimore. Becoming a special student in physics, mathematics and electrical engineering at the John Hopkins University, he took up electrical work in a broader line, and was instructor in the University of Nebraska, and later in the McGill University, Montreal, Canada.

Joseph H. Dalton, formerly foundry superintendent of the Jeffries Mfg. Company, Columbus, Ohio, has accepted the position of superintendent of the foundry of Geo. H. Thacher & Co., Albany, N. Y., who do a general business in gray iron and brass castings.

Frank Francis, formerly assistant manager of the Penn Steel Casting & Machine Company, Chester, Pa., will on June 1 assume the position of general manager of the Chester Steel Castings Company in the same city.

Dr. G. B. Waterhouse, Buffalo, who has been engaged on work in metallography and other special lines for the Lackawanna Steel Company in the past few years, has been appointed metallurgist of the company, to succeed Harry Cook, resigned.

Reuben Miller, first vice-president of the Crucible Steel Company of America, Pittsburgh, also a member of the Board of Directors and of the Executive Committee, has resigned. C. C. Ramsey, formerly assistant to the president, has been made first vice-president and also a member of the Executive Committee. G. Harton Singer, son of the late William H. Singer, has been elected a member of the Board of Directors.

Obituary

WARNER ARMS

Warner Arms, president of the Republic Rubber Company, Youngstown, Ohio, died May 18, aged 58 years. He had been ill for a week of angina pectoris. He was known for years as president of the Falcon Iron & Nail Company, Niles, Ohio, which was established in 1867. In 1886 the Falcon Tin Plate & Sheet Company at Niles was taken over, its principal product being Russia iron sheets. The company in 1892 built a mill to roll black plates and in March, 1895, it produced tin and terne plates. This latter plant was taken over by the American Tin Plate Company; later on the organization of the American Sheet Steel Company the latter took over the original sheet mill plant of the Falcon Iron & Nail Company. Mr. Arms was third vice-president of the American Tin Plate Company and later was made first vice-president. He retired from sheet and tin plate manufacture in 1903, when the sheet and tin plate consolidations were merged in the American Sheet & Tin Plate Company.

FREDERICK E. CROSS, Waterbury, Conn., formerly of the firm of Cross & Spiers, manufacturers of special machinery, died May 20, aged 64 years. He was a native of Cape Vincent, N. Y., but resided in Waterbury from childhood. He served in the Union Army. Much of his life he was engaged in manufacturing, but he represented his city in the State Legislature in 1903-'04. He leaves a widow and three daughters.

PHILIP H. GILL, founder and president of P. H. Gill & Sons' Forge and Machine Works, Brooklyn, N. Y., died May 18, aged 71 years. He was born in Cornwall, England, removed to this country 40 years ago, and became widely known as a builder of grain elevators and flour mills. He leaves a widow, two sons and a daughter.

MARK MCDONOUGH, manager of the Midland plant of the American Sheet & Tin Plate Company at Muncie, Ind., died May 18 at Carnegie, Pa., following an operation for cancer, aged 46 years. He had worked his way up from a mechanic to head roller, superintendent and through successive stages to a managership. He leaves a widow.

WILLIAM PHIPPS BLAKE died at Berkeley, Cal., May 21, aged 84 years. He had been for years Professor Emeritus of Geology at the University of Arizona at Tucson. He was born in New York City, was graduated from Yale in 1852, and became one of the most prominent geologists and mineralogists in the United States. He made many official reports as a representative of the United States to worlds' expositions, published numerous works on various subjects, and it is claimed that it was largely through his efforts that the United States was influenced to purchase Alaska.

WILLIAM HARVEY ROWLAND, secretary of William & Harvey Rowland, Inc., spring manufacturers, Frankford, Philadelphia, died May 20 from typhoid fever, aged 30 years.

Some of the nail machines of the Southern Iron & Steel Company, Alabama City, Ala., were started up last week. The rod mill is now turning out about 500 tons a day. It is expected that the wire department will be in operation within a few weeks.

Trade Publications

Feed Water Heater.—The Harrison Safety Boiler Works, North Philadelphia Station, Philadelphia, Pa. Pamphlet entitled "A Problem and Fifteen Solutions." Size 6 x 9 in.; 16 pages. This pamphlet describes 15 different ways of arranging an exhaust steam heating plant consisting of two exhaust mains, an open feed water heater and receiver and a riser to the heating system, so that the system shall at all times receive oil-free steam and the entire exhaust shall be available for the feed water heater or for the heating system as may be required. Provision was also to be made for cutting the heater out of service for cleaning or inspecting without interrupting the supply of purified exhaust steam to the heating system. Although many of the solutions presented are ingenious, they are all taken to show how the Cochrane steam-stack and cut-out valve heater and receiver will not only effect a saving in the first cost of an exhaust steam heating equipment as compared with the ordinary methods of connecting the heater and receiver, and at the same time render the equipment easier to operate and more simple and compact. *The Iron Age* June 10, 1909, and March 3, 1910, contained illustrated descriptions of this heater.

Gas Engines.—Bogart Gas Engineering Company, 1116 Chamber of Commerce Building, Buffalo, N. Y. Two bulletins. Bulletin S refers to a single cylinder stationary gas engine built in various sizes from 20 to 100 hp. Bulletin T gives general description and specifications for a line of single and double tandem gas engines from 50 to 500 hp. Both styles of engines operate on the four-cycle principle and are designed for either belt or direct connection to the machines which they drive. The illustrations show the different styles of engines and their various parts.

Transmission Chains.—Morse Chain Company, Ithaca, N. Y. General bulletin No. 9; size 6 x 9 in.; 30 pages. Relates to the use of the Morse silent-running high-speed chains for driving line shafting and machine tools. This chain, it is claimed, furnishes an ideal method of power transmission, and its success is said to be due to the frictionless character of the joint, which consists of two pieces of hardened steel rocking or rolling on each other. This chain can be used for transmitting from ¼ to 1000 hp. at any speed up to 3000 rev. per min. The illustrations are reproductions of photographs illustrating the application of the silent chain to machinery and line shaft driving.

Lifting Jacks.—The Joyce-Cridland Company, Dayton, Ohio. Catalogue A; size 4¼ x 9¼ in.; pages 96. In addition to listing a complete line of jacks for all purposes, the catalogue also contains discussions of the construction and recent improvements in this line of jacks as well as the relative merits of the various types for different classes of service and recommends the most suitable jack for the several lines of work. An illustrated description of the company's automatic track jack was printed in *The Iron Age* February 3, 1910. Complete information regarding the dimensions and weights of the various jacks is appended.

Graphite.—The United States Graphite Company, Saginaw, Mich. Booklet and general catalogue No. 20. The former contains excerpts from a report on graphite mining in Mexico by Frank L. Hess of the United States Geological Survey, which was printed in the *Engineering Magazine* October, 1909. Portions of the report deal with a visit made by Mr. Hess to the mines of this company in the State of Sonora, Mexico, in March, 1909. The catalogue illustrates and describes briefly the products of this company, which include lubricating graphite, graphite greases and lubricants, graphite for special purposes, stove polish, graphite paint and plumbago and graphite foundry facings. A number of devices for introducing lubricating graphite into steam cylinders are also shown.

Diamond Tools.—Thos. L. Dickinson, 64 Nassau street, New York City. Catalogue and price-list. Treats of diamond tools and points for dressing, truing and shaping abrasive wheels, cleaning solid and leather-covered polishing wheels and truing and shaping large grindstones; also carbon and diamond points for turning metal rolls, cutting and drilling glass and writing and etching on glass; and engravers' and glaziers' diamonds. The different types of tools are described and several types of glass cutting machines are also shown.

Boilers.—The Marine Boiler Works Company, 2339 Front street, Toledo, Ohio. Catalogue. Refers to a line of boilers for power plant work. The requirements of a good steam boiler and the principles of combustion are discussed, and this is followed by a partial list of boilers installed. These include Scotch marine boilers, internally fired boilers, Toledo square box boilers, vertical submerged and straight tube boilers, horizontal return tubular boilers and the Bordeaux water tube boiler. Brief mention is also made of digesters and rotaries for paper and pulp mills.

The Standard Railway Equipment Company, manufacturer of Monarch pneumatic tools, has removed its main office from St. Louis to room 722 Frick Building, Pittsburgh, Pa.

Labor Notes

Organizers of the International Association of Machinists are at work on the Pacific Coast and are especially active in Seattle in an effort to prepare for a demand upon manufacturers June 1 for an eight-hour day.

The Bessemer Gas Engine Company, Grove City, Pa., has advanced wages of molders and coremakers 10 cents a day to $3.35, and laborers have received an advance of 25 cents a day.

The Weatherly Foundry & Machine Company, Weatherly, Pa., states that the report that a number of its molders had struck for an advance in wages is incorrect. The molders went out owing to a misunderstanding, but came back on the following morning under the same rules and regulations that previously prevailed.

At Washington, May 19, Charles Bookwalter, ex-mayor of Indianapolis, Ind., presented before the United Typothetae of America the interests of Winona Technical Institute at Indianapolis, of which he has been receiver. He declared that the tendency of the higher technical schools of this country is to educate boys away from work, adding that "the average American boy is getting to think it is dishonorable to work with his sleeves rolled up." The Typothetae voted $3,000 in support of the Winona Institute.

The Racine Iron & Metal Company, 944-958 Milwaukee avenue, Racine, Wis., has purchased and taken possession of the property of the Eagle Horseshoe Company at South Milwaukee, comprising 12 acres of land, rolling mill, horseshoe factory and all other buildings. The new owner has not decided what it will do with the plant. M. L. Fox is manager.

The plant of the Indiana Chain Works at the Indiana Reformatory, Jeffersonville, Ind., which for ten years made chain by prison labor, has been dismantled and the machinery shipped to various parts of the country. The various plants operated by prison labor are giving way to trade schools, under the new law of the State.

The Seaman-Sleeth Company, Forty-first street, Pittsburgh, established in 1870, manufacturing as its specialty semi-steel rolls as well as sand and chilled rolls for all purposes and pinions, reports operating its plant to capacity, having orders on its books from various iron and steel manufacturers in different parts of the country.

The Maryland Steel Company has just blown in its C Furnace at Sparrows Point, Md., and all four furnaces are now in blast for the first time in more than two years. Furnace A will be blown out in a few weeks for extensive repairs.

The General Drop Forge Company, Buffalo, N. Y., has recently increased the capacity of its plant. It has added a fireproof building in which are installed a number of heavy drop hammers.

The Garwood Electric Company, Garwood, N. J., has appointed the George F. Herring Company, Saginaw, Mich., its agent, with territory including Saginaw and the district within a radius of 50 miles.

The Tuthill Spring Company is building an addition to its spring works of 53 ft. more on Polk street, Chicago, which increases the area of its manufacturing space 25 per cent.

Open Hearth Steel Production, 1909

The American Iron and Steel Association has just compiled its statistics for the production of open hearth steel ingots and open hearth castings in 1909. They show that the total was 14,493,936 gross tons, against 7,836,729 tons in 1908, an increase of 6,657,207 tons, or 85 per cent. The production in 1909 was much the largest in the history of the industry and exceeded that of 1907, the next largest year by 2,944,200 tons, or 25.4 per cent. In 1908 the production of open hearth steel for the first time exceeded that of Bessemer steel, the totals in that year being 7,836,729 tons and 6,116,755 tons, respectively. For 1909 the figures were 14,493,936 tons and 9,330,783 tons, respectively. The rapid increase in the production of basic open hearth steel accounts for the record-breaking figures in 1909. The total production of basic open hearth ingots and castings was 13,417,472 tons, while that of acid open hearth ingots and castings was 1,076,464 tons. This last figure has been exceeded in five preceding years—namely, 1907, 1906, 1905, 1903 and 1902.

The production of open hearth steel castings in 1909 was 601,040 tons, of which 306,005 tons was basic and 295,035 tons acid steel.

The production of crucible steel in 1909 amounted to 107,355 tons, against 63,631 tons in 1908, an increase of 43,724 tons, or 68.7 per cent. Of the total for 1909 94,672 tons was ingots and 12,683 tons castings. The high point in crucible steel production was reached in 1907 at 131,234 tons; in 1906 the total was 127,513 tons. Last year's total was over 5000 tons less than that of a year as far back as 1902.

The production of steel in 1909 by various minor processes, including the electric process amounted to 22,947 tons, against 6132 tons in 1908. Of the total last year 14,242 tons was ingots and 87,005 tons castings.

The production of all kinds of steel ingots and castings in 1909 amounted to 23,955,021 tons, against 14,023,247 tons in 1908, an increase of 9,931,774 tons, or 70.8 per cent. The production of the various kinds of steel in the past three years is as follows in gross tons:

	Bessemer.	Open hearth.	Crucible and all other.	Total ingots and castings.
1909.....	9,330,783	14,493,936	130,302	23,955,021
1908.....	6,116,755	7,836,729	69,763	14,023,247
1907.....	11,667,549	11,549,736	145,309	23,362,594

Included in the 23,955,021 tons of steel ingots and castings made in 1909 was about 182,000 tons of alloyed steel, of which 159,000 tons was ingots and 23,000 tons castings. Of the total of 182,000 tons approximately 42,000 tons was made in Bessemer converters, 120,000 tons in open hearth furnaces and 20,000 tons in crucible, electric or special furnaces.

Westinghouse Companies Get an Irrigation Order.—The Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., recently entered an order for two 600-kw. alternating current generators, to be installed in connection with the work of the Portales Irrigation Company, Portales, N. M. The Westinghouse Machine Company will make the gas engines to drive these and will also furnish three 500-hp. bituminous gas producers. In connection with this irrigation project, 72 motor-driven pumps will take water from wells, 30 to 50 ft. deep, and deliver it to the farms in the surrounding territory. Through their combined efforts many thousand acres will be made productive. The Western Construction Company, Wichita, Kan., has the contract for the construction work. It is expected that the cost of water per foot-acre supplied by the system will be sufficiently low to make it commercially practicable to reclaim hundreds of thousands of acres of similarly arid lands, which have substrata carrying an abundance of water.

British Pig Iron Production in 1909

The statistics of the British Iron Trade Association show that the production of pig iron in Great Britain in 1909 was 9,664,287 gross tons, against 9,289,840 tons in 1908, 9,923,856 tons in 1907, and 10,149,388 tons in 1906. The production of forge and foundry pig iron has remained about the same in the past two years, though exact figures are not given. The production of basic iron in 1909 was 230,000 tons more than in 1908 and that of hematite iron was 183,000 tons greater. The average number of furnaces in blast in 1909 was 319¾. In 1908 it was 316¼; in 1907, 366¼. The average annual output of pig iron per furnace in blast was 30,224 tons last year. In 1908 it was 29,375 and in 1907 27,096.

The Hudson's Bay Railroad.—The Canadian Minister of Railways recently announced that construction of the Hudson Bay Railroad will be begun by the Government at once. The first work that will be given out is the bridge that is really the beginning of the road, which is to start from the Pas Mission, to which point the Canadian Northern has already built. It is not yet decided whether the mouth of the Nelson or the Churchill will be the northern terminus of the road, and a steamer carrying a location party will be sent north this summer to make a choice of the terminal point. In the meantime the construction of 160 miles of the road can be pushed on, irrespective of the terminus. It is believed that the road will lead to the development of valuable iron ore deposits in a part of the country traversed.

The Reading Iron Company is building two additional puddle mills, 63 x 192 ft. and 60 x 128 ft., adjacent to its Keystone Furnace and Oley Street Rolling Mills, Reading, Pa. They will be of steel skeleton construction, with corrugated iron sides and slag roof. Owing to their close proximity to the furnace, there will be a resulting convenience and economy in the handling of the iron and the rolled product. The operation of these new mills will enable the company to produce a sufficient supply of skelp from its various puddle mills to meet the demands of its growing wrought iron pipe and tube business.

The citizens of New Orleans, La., are working vigorously to secure the recognition of Congress for the World's Panama Exposition proposed for that city. A fund of over $1,000,000 has been raised by the city of New Orleans, and the legislature of Louisiana has practically agreed to a State and city tax which will secure an additional $4,000,000. A letter has been received from the New Orleans Roofing & Metal Works strongly advocating the project.

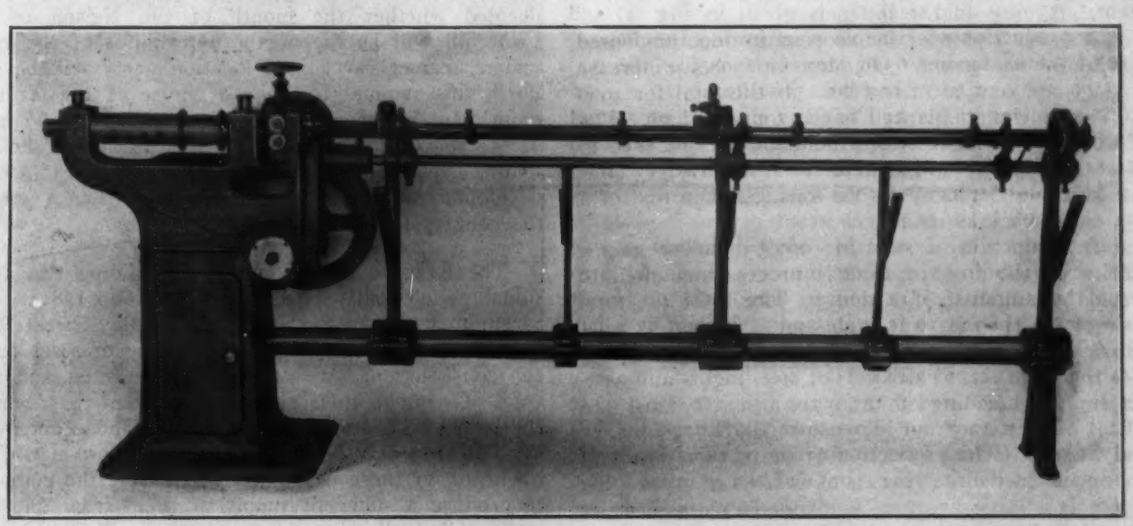
The Pittsburgh & Lake Erie Railroad bridge over the Ohio River at Beaver, Pa., the erection of which was begun two years ago, has been completed, and trains are now running over it. It is the highest cantilever structure in the country. It is 1800 ft. long, and 240 ft. above the water level. The length of the longest span is 769 ft. The steel work for the superstructure, 16,300 tons, was furnished and erected by the McClintic-Marshall Construction Company, Pittsburgh.

The American Sheet & Tin Plate Company, which recently installed a cooling system in its tin plate plant at Sharon, Pa., has begun work on similar systems for its Shenango and New Castle plants, the purpose being to afford relief to the workmen during the summer months. The preparations are being made with a view to operating the mills steadily through midsummer, avoiding the usual July shutdown.

The Greiner Automatic Wire Straightening and Cutting Machine

The accompanying illustration shows one of the smaller models of a line of machines built by the Charles Greiner Company, New Haven, Conn., for straightening and cutting off wire directly from the bundle into pieces of given lengths. These machines are of heavy, rigid construction and ample proportions and possess some important and exclusive features which, it is claimed, insure long and satisfactory service.

To operate the machine a shaft of about the same length as the piece to be cut from the reel of wire is attached to the fulcrum of the cutting-off lever and rotates with each movement of it. Above and in front of this shaft is the guide bar, which is connected with both the shaft and the cutting-off lever and has a groove running its entire length. A movable adjustable gauge is located in this groove and the feed rolls as they draw the wire through the rotary straightening arbor feed the wire against this gauge. A wire connects the outer end of this gauge to a clutch on the cam shaft and the action of the wire in striking the gauge as it passes through the groove from the straightening dies throws the clutch into engagement and the cutting-off lever works instantly. The rotary action of the shaft at the same time throws the cover off the groove in the guide bar by striking arms on it and the cut length of wire drops into forked holders which are mounted on a piece of wrought iron pipe. This pipe is fastened into the base of the machine at one end and is supported at the other by a floor stand. In some of the machines these holders extend upward to support the shaft, guide bar and other parts of the mechanism and in this way add rigidity and strength to the various parts of the cutting extension.



An Automatic Machine for Straightening and Cutting Off Wire to Length, Built by the Charles Greiner Company, New Haven, Conn.

These machines can be supplied to cut any reasonable length of the following sizes of wire: 1-16, ⅛, 3-16, ¼, ⅜, ½, ⅝ and ¾ in. The model illustrated is intended to cut ⅛-in. wire into 6-ft. lengths. Although the sizes just mentioned are the ones which the machines are intended to cut, they are all capable of working smaller diameters by equipping them with feeding and cutting tools of the proper size. Brass, copper, tinned, black or galvanized iron or steel wire, or plated and highly finished wire, can be cut by these machines.

Adjustable Flue Covers and Blocks for Boiler Settings.—The Adjustable Cover & Boiler Block Company, Ltd., London, England, has recently introduced in this country its line of adjustable boiler and flue covers and boiler setting blocks. These covers and blocks are adaptable to any type of boiler. A patented seating block is used for the boiler to rest on, and the space between the side of the boiler and the brickwork of the setting is covered at the top by removable flue covers. All of the pieces are of such size as to be conveniently handled. These blocks are said to effect a great saving in fuel consumption because they eliminate three causes of waste of heat—the accumulation of soot in the flues, cracked brickwork permitting cold air to rush into the flues, and too large a surface of brickwork in contact with the boiler. P. E. Whitehurst, 500 Fifth avenue, New York City, is the American agent for these covers and blocks.

The Forter-Trump Gas Producer

The Forter-Miller Engineering Company, Hartje Building, Pittsburgh, is now building the Forter-Trump gas producer, in which special devices are provided for regulating the descent of the fuel bed in the producer and for removing ashes from the ash bed automatically and regularly. Two types are built, one the hand-fed Forter-Trump gas producer, with automatic ash extracter and ashpan, and the other provided with automatic feed, ash knife, ash hopper and water seal.

The novel features of this producer were described in an illustrated article in *The Iron Age* of February 25, 1909, page 646, details being there given of the Trump revolving knife, by which the coal feed is accomplished, and the revolving deflector, also known as the Trump knife, so designed as to give a radial thrust to the ashes. The air and steam necessary for gasification and partial combustion are delivered by two steam blowers into a circular wind-box, which contains the Forter-Trump circumferential grate. Blowers are located on opposite sides of the box. A third steam blower delivers air and steam through a central vertical tuyere, with cone-shaped head, to the center of the fuel bed. The circumferential grate is inclined at a steep angle to the horizontal and the incandescent fuel and ashes easily slide down on it. This arrangement gives a uniform distribution of air and steam over the coal area of the fuel bed. The gas maker can force more or less air to center or circumference of the bosh, as the nature of the fuel or the condition of the gas may require. The Forter-Trump producer has been in use in the past two years at two large plants. The Forter-Miller Engineering Company contracts for new installations or for remodeling ordinary water seal gas producers.

The Cincinnati Planer Company's New Plant

Another of the Oakley Group of Factories in Complete Operation

It was a little less than two years ago that the project of grouping a number of tool manufacturing plants in Oakley, one of Cincinnati's highland suburbs, was first proposed. Among the promoters of the plan were B. B. Quillen of the Cincinnati Planer Company, F. A. Geier of the Cincinnati Milling Machine Company, J. C. Hobart of the Triumph Electric Company and August Tueschter and Sherman Schauer of the Cincinnati-Bickford Tool Company. An important advantage to be realized from the scheme was the furnishing of power and light from one central station. This station is now completed, and also the shops of the Triumph Electric Company, the opening of which was referred to in *The Iron Age* May 5, 1910, the Modern Foundry Company, an enterprise of the officers of the Cincinnati Milling Machine Company and associates, and for a year the Cincinnati Planer Company has been building small and medium sized planers in its new plant. A view in the latter is given in Fig. 1, and Fig. 2 shows a plan of the shop indicating the disposition of the equipment. On May 1 the last of the machinery and equipment had been installed.

The Cincinnati Planer Company has built on a tract of nine acres lying between the plants of the Triumph Electric Company on the west and the Cincinnati Milling Machine Company on the east. The new factory is a one-story brick and steel structure, 140 ft. wide by 400 ft. long, with a separate office building of two stories on the front opening into the shop and protected by automatic fire doors. The main or center aisle of the shop is 50 ft. wide and is flanked by a bay on each side 45 ft. wide. The office clerical staff occupies the large main room on the first floor of the office building, and leading off the main aisle are the private offices of Secretary and Treasurer Quillen on the left and Superintendent Langen on the right. The upper floor contains the drafting room and blue printing room. There is a large fireproof vault on both the first and second floors.

The Shop

A noticeable feature of the shop interior is its splendid lighting. The use of saw-tooth roofs adopted by the other nearby factories was not followed in this plant. Instead top lighting is secured through skylights along the ridge of the roof and on the sides of the top of the main bay, which are inclined at an angle of 45 degrees, and in addition the outside walls of the side bays have large closely spaced windows. A splendid view of practically the entire shop is afforded from the second floor of the office building by stepping out on a little balcony which looks down the long main bay. With the aid of field glasses or a small telescope the distant end of the shop may be searched.

This middle bay is served by an Alliance electric crane of 15-ton capacity, used in handling the heavy planer beds and tables in the erecting section and in serving the big tools in the main aisle. A 5-ton Pawling & Harnischfeger electric crane is in operation in the west bay and in the east bay a 3-ton Shepherd crane, both controlled from the floor. These cranes are used in handling the rails and other parts of the machines too heavy to carry. To facilitate shipping a depressed railroad track enters the shop at the end adjoining the office building. This track will admit within the building two 40-ft. cars, and both can be loaded or unloaded at the same time with the services of the large crane in the middle bay and the 5-ton machine in the west bay. To avoid possibility of crowding and delays, local shipments are cared for by a private drive-

Fig. 1.—A View in the Cincinnati Planer Company's New Plant at Oakley, Cincinnati, Ohio, Looking from the Office End.

way. A single trolley crane is provided, traveling over the stockroom door, to assist in loading and unloading wagons, trucks, &c.

The floor is built up of two layers of oak on 8 in. of concrete completely covered with a coating of tar with all sleepers creosoted. The plant is heated by the Evans-Almirall hot water system and artificial lighting is furnished by Cooper-Hewitt mercury vapor lamps. All heat, light, power, compressed air and water are supplied this plant, in common with the others of the group, from a central power station owned by the several companies located on the factory colony property. Sanitary drinking fountains are scattered about the plant. Interesting features of the locker rooms are that these as well as stockrooms, &c., are built out from the main buildings, the idea being to avoid any obstruction to a clear view of the shop proper. In the locker rooms are separate washbasins for each workman and separate pressed steel lockers to accommodate 250 workmen. The foremen have a separate room with lockers, washbasins and other conveniences.

Machine Tool Equipment

The machine tool equipment includes a 36-in. boring lathe of the company's own make; a Colburn boring mill; a Gisholt, a Schumacher & Boye and three Jones & Lamson turret lathes; Dreses, LeBlond, Schumacher & Boye, American, Davis & Egan, Bradford and Lodge & Shipley engine lathes, 23 in all, ranging from small chucking and polishing lathes to lathes swinging 36 in., of various bed lengths, several 8 ft. long and one for turning shafts 16 ft. long; two automatic screw machines; an emery wheel; a grindstone; 14 of the company's own planers, ranging from 30 x 30 in. x 14 ft. and 33 x 33 in. x 12 ft. up and including as the two largest a 76 x 62 in. x 32 ft. and an 88 x 72 in. x 32 ft. planer; a 36 x 36 in. x 14 ft. Chandler planer; a Brown & Sharpe and a Cincinnati grinder; a No. 5 Eberhardt Bros., a 72-in. a 48-in. and a 36-in. Gould & Eberhardt, a Brown & Sharpe and a Dreses gear cutter; a Whiten bevel gear cutter; a No. 3 and three No. 2 Cincinnati milling machines; a No. 3 Owens miller for shafts; a Fosdick and a Detrick & Harvey boring machine; four Bickford and two Fosdick radial drills; three Bickford and three Cincinnati upright drills; a Fosdick drill for drilling tables; two key seaters and a drill grinder. How this equipment is arranged in departments is shown in Fig. 2. The disposition of machines is such as to move the work along by easy stages from the time it is received at the rear of the shop (north) to the front in finished form and ready for shipment on cars admitted at the front end of shop in close proximity to the shipping floor on the depressed track.

The machine tools are driven in groups, each department by its own motor, the line shafts being put up in sections so that each department is independent of the others. The larger tools, however, are driven by individual motors mounted on the machines. Hyatt roller bearings are used on all line shafting. A unique feature is that the motors are mounted on concrete piers about 3 ft. high, enough to put them out of the way of injury, but still leave them easily accessible from the floor for attention. The heavy tools are all mounted on solid concrete foundations and the lighter machines rest directly on the floor. The motors installed include the following: Two in the lathe department of 25 hp. each; one of 25 hp. driving the gear cutters; one of 15 hp. driving the polishing department; two of 35 hp., respectively, driving the two large planers in the center aisle, and separate motors for each of the three testing shafts which are 10, 15 and 25 hp. respectively.

Other Special Features

In certain machining operations, such for instance as the planing of tables, to secure the greatest accuracy, the casting is first completely roughed and drilled and then allowed to lay a few days, giving it time to

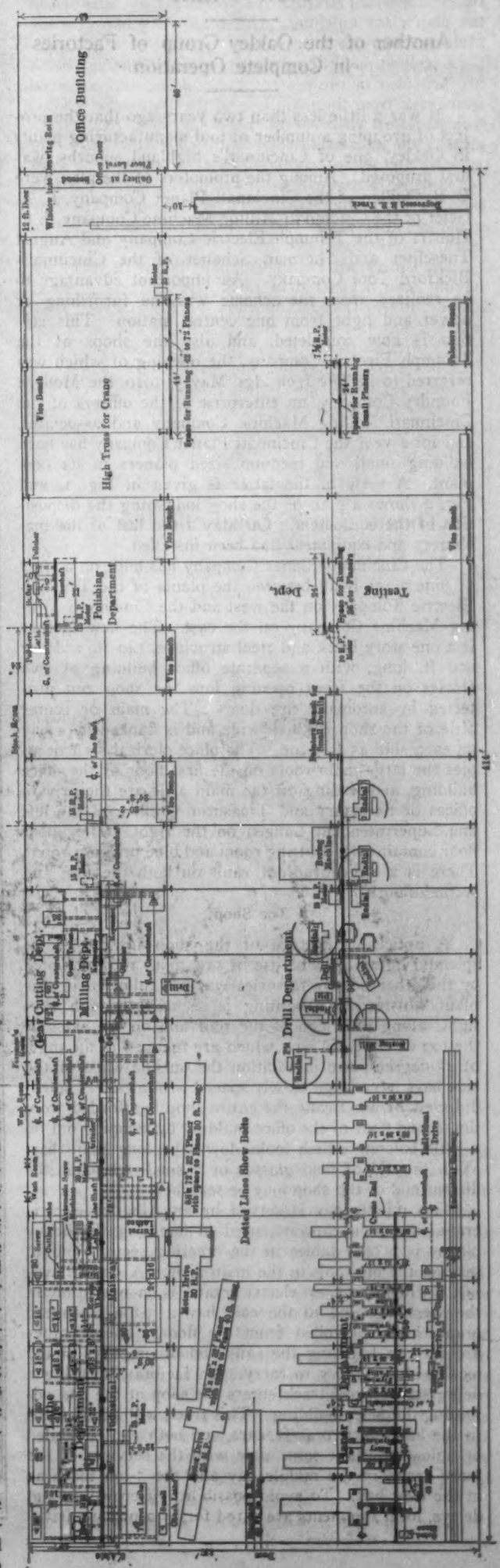


Fig. 2.—Plan of the Cincinnati Planer Company's Shop, Showing the Arrangement of Tools, Drives and Transporting Facilities.

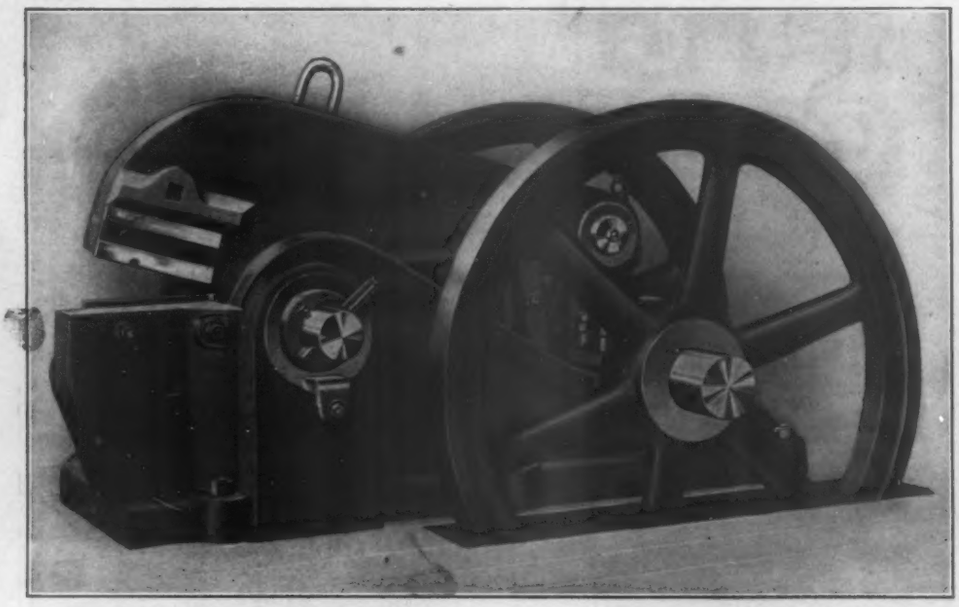
adjust itself to any change of form that may follow the relief of internal strains. The piece is then returned to the planer for finishing. On small work like gibs the same practice prevails.

Excellent facilities for handling the castings stock are provided in the rear of the building and a special spur track from the main line of the Baltimore & Ohio Southwestern road serves this department exclusively. Among the interesting shop fixtures are stock racks for spindles and shafts consisting of floor stands with arms for holding a large number of pieces, large portable bins for assembling finished parts and other little conveniences that make for the most rapid execution of work.

The Cincinnati Planer Company is but 12 years old, having been organized in 1898. Its business grew so rapidly in the limited quarters in Buck street from which it has just moved that as long as five years ago it was obvious that a larger plant would be necessary. The company is building the largest size planers in modern use, and besides is just finishing the first model of a new boring mill, which will be announced soon. It is estimated that the increased capacity of the company in its new quarters will be not less than 50 per cent.

A Thomas Carlin Low-Knife Bar Shear

The illustration shows a low-knife bar shear being put on the market by the Thomas Carlin's Sons Company, Henry W. Oliver Building, Pittsburgh, Pa. This is known as the No. 21 shear and is designed primarily for cutting muck bar in suitable lengths to put in crucibles, but it can also be used for any other cutting within its capacity, which is 1¾ in. square soft steel cold. The design of the shear is very simple. The crank shaft is cast steel, while the lever pin is a steel forging and very heavy in construction. The shear is direct acting and, owing to its high speed of 60 to 80 cuts per min., it will handle large quantities of material in a given time. The illustration shows the machine without pulleys and the company builds it with tight and loose pulley for belt drive, or equipped with a large gear wheel and with crank shaft for motor drive. The knives are 12 in. long and the weight of the shear is a little over 10,000 lb.



The No. 21 Low-Knife Bar Shear Built by the Thomas Carlin's Sons Company, Pittsburgh, Pa.

The Manistique, Mich., charcoal blast furnace of the Lake Superior Iron & Chemical Company has been blown out for repairs.

The Herrick Rotary Engine

Realizing that something out of the ordinary was necessary in announcing a new rotary engine that it might secure serious attention, the Herrick Engine Company, New York City, conceived the unique plan of making this announcement at a dinner held in celebration of the inventor's achievement. Nearly a hundred guests were present at the dinner, which was given at the Waldorf-Astoria May 21, among them many prominent in the engineering and industrial world, and including several particularly interested in ship propulsion, for which the engine is regarded as peculiarly qualified. E. Hicks Herrick, brother of the inventor, presided, introducing the speakers, of whom the first was Hon. Everett Colby, who welcomed the guests on behalf of the company.

The inventor, Gerardus P. Herrick, discussed some of the elements involved in his task, and indicated that the field for the rotary engine appears to be that lying between the reciprocating engine and the turbine. Among its advantages are rotary motion and speeds not too high for direct connection. The principal problems were reducing friction and leakage to within commercial limits of reliability and economy, and the principal accomplishments the elimination of sliding parts in contact in the steam spaces under load, and radial pressure on the bearings due to the steam pressure. The first was obtained by nice adjustment of mechanical clearances, and the second by providing means for automatically balancing the radial pressure by admitting the steam under as well as over the hub of the revolving element. Prof. Frederick L. Pryor of Stevens Institute of Technology, who has conducted the tests on the recent models of the engine, told something of these tests, and declared the engine to be the most successful of some 15 which have been tested in the Stevens laboratory. He was followed by F. L. Stevenson, chief engineer of the International Harveser Company, who to satisfy himself had given the engine a pretty complete investigation, and spoke very appreciatively of the results that had been accomplished. Luther D. Lovekin, chief engineer of the New York Shipbuilding Company, then outlined what appeals to him as one of the principal fields of application for the engine, its use on shipboard in combination with steam turbines, the Herrick engine to exhaust into the latter. His calculation is that there would thereby be saved some 20 to 25 per cent. of coal consumption for a given speed, or a corresponding increase in speed for the same consumption, or an increase in steaming radius.

Before and following the dinner the 20-hp. model of the engine, which has been on test in Stevens Institute, and also in practical working in a contracting plant of the Degnon Construction Company, was exhibited in an adjoining room. The cover of the engine was removed so that the interior might be inspected and the engine was driven by a motor to show the action of the moving parts.

The Changeezy I-Beam Trolley

The New Jersey Foundry & Machine Company, 90 West street, New York, has brought out a special trolley for running along the lower flange of an I-beam. The principal feature of this trolley is that it can be converted from a plain to a geared one, or vice versa, at will, thus combining all the advantages of both the plain and geared types. Fig. 1 shows the trolley with the pinions engaged and Fig. 2 shows them disengaged, the change being made by the hand chain.

Rotating the hand chain enables the trolley to be racked along the track when handling heavy loads by a simple arrangement of the pinions which operate the gear wheels. When traveling either with a light load or no load the trolley may be pushed or pulled along the track by the same means. In the latter case the chain does not rotate and the danger of its catching on projecting screws or machinery is eliminated. When using an ordinary geared trolley it cannot be racked along the track much faster without load than with a heavy one, and for carrying light loads or transferring the empty trolley from one point to another there is a good deal of lost time. All of this, it is claimed, can be saved by this trolley, as a man can travel much faster with a lightly loaded or empty trolley of the plain type than he can rack an ordinary geared trolley. The requirements of both plain and geared types are met by the Changeezy, as it can be instantly transformed from one to the other.

Another advantage which this trolley is said to possess over the ordinary geared model is that the wheels rotate independently of each other, which is important when they are to be used on curved tracks. Where the gear wheels on the opposite sides of the trolley rotate in unison the wheel on the outer side of the curve must travel a greater distance than the one on the inner side, compelling either the outer or inner wheel to slip, which increases the wear on the beam and the wheels and the power required to operate the trolley.

In the construction of this trolley steel is used for the side plates and the wheels are all fitted with roller bearings. These bearings are lubricated from a central reservoir, which feeds the lubricant to the middle of the rollers, while the dirty oil works out at either end, thus keeping the bearings clean and free from dust and grit.

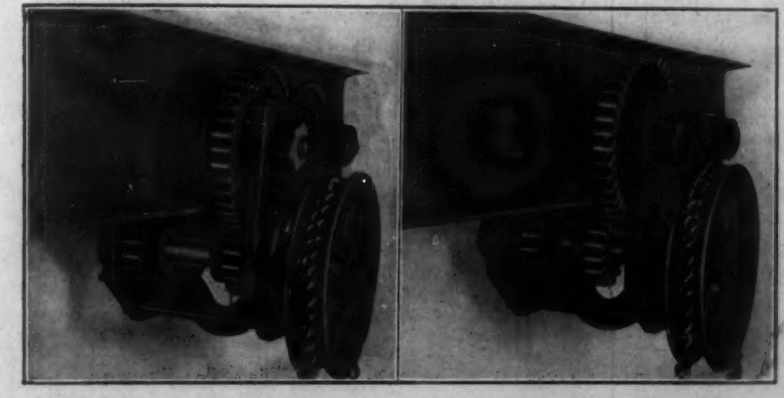
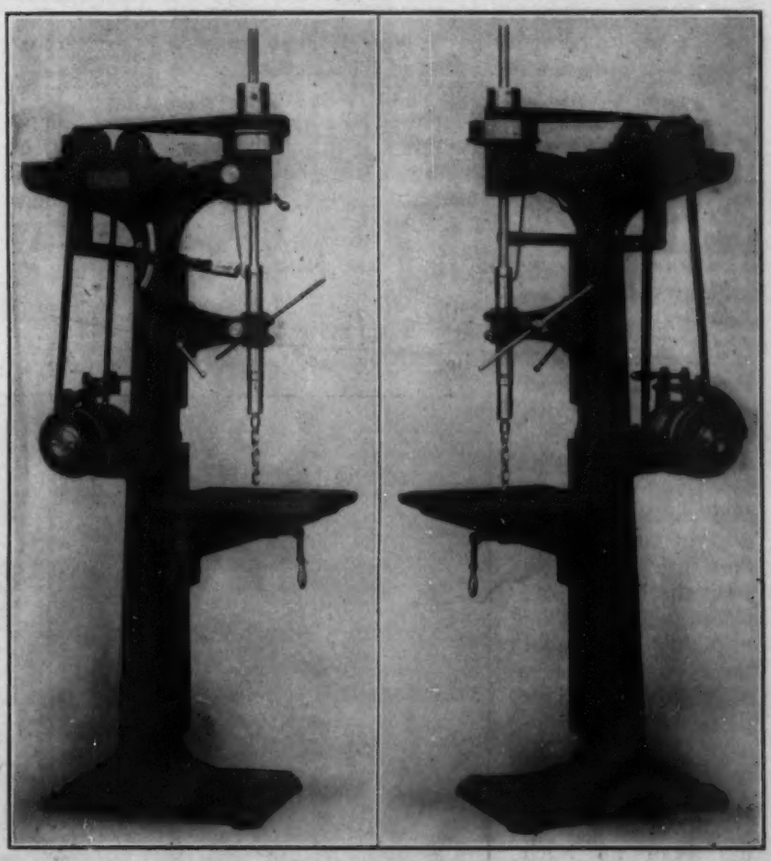


Fig. 1.—Pinions Engaged. Fig. 2.—Pinions Disengaged.

The Changeezy I-Beam Trolley Made by the New Jersey Foundry & Machine Company, New York.

The Kern Ball-Bearing Sensitive Drill

The line of high-speed, ball-bearing, sensitive drills made by the Kern Machine Tool Company, 4657 Spring Grove avenue, Cincinnati, Ohio, has been redesigned. The principal features which distinguish this new design from the former models are a heavier construction, the development of greater power and the ability to stand up better under hard, continuous service. Ball-bearings are provided throughout the entire machine and all cones and ball races are of hardened steel and accurately ground on special machines.



Two Views of the Single Spindle Ball-Bearing Sensitive Drill Built by the Kern Machine Tool Company, Cincinnati, Ohio.

The tool is driven by a 1½-in. endless belt, which runs from the countershaft up and over the idler pulleys at the top of the shaft, and then around the pulley on the head of the spindle. These idler pulleys are mounted on a carriage, which is adjustable for tightening the belt. The movement of this carriage is controlled by the lever at the left of the column; a downward pull loosens the belt and permits changes from one to another of the four speeds, ranging from 600 to 1800 rev. per min., to be made instantly, while an upward movement produces any desired tension in the belt. When the lever is released the carriage is automatically locked by a spring concealed in the lever, which forces a latch into place between the teeth of the quadrant. The spindle cone is carried on a sleeve, which is journaled in the column and relieves the spindle of any belt pull. A rack and pinion operated by the small lever shown is employed to raise and lower the cone. The steel rack pinion and

shaft are made in one piece. The spindle is double splined and its sleeve is graduated and fitted with an adjustable stop collar. The upper and the lower columns are tongued and grooved, thus preventing any disturbance of alignment.

The following are the principal dimensions and specifications of the drill:

Minimum section of spindle, inches	1
Traverse of spindle, inches	15
Maximum distance of spindle from table, inches	32
Center of spindle to face of column, inches	8
Countershaft speed, revolutions per minute	800
Diameter of driving pulleys, inches	8
Traverse of sleeve, inches	6
Traverse of table, inches	21
Traverse of head, inches	9
Table surface, inches	16 x 16

The drill illustrated is the single spindle model; others having two, three, four and six spindles are also built. The dimensions given in the above table apply to all the models. In the multi-spindle types the distance between the spindle centers is 9 in. and the working surface of the table is proportionately larger, that for the six-spindle model being 16 x 58 in.

The Jones & Laughlin Tin Plate Mills Started

The first six mills in the new tin plate department of the Jones & Laughlin Steel Company at Aliquippa, Pa., were started with ceremony at 8 o'clock Monday morning, May 16. Mrs. B. J. Ross, wife of the superintendent of the department, took the first pair of plates from the heaters and placed them in the rolls. At this signal the crews of the six mills stepped to their places and commenced work. The new machinery was found to be in perfect condition, and there has been no hitch since the opening. The buildings are roomy, furnishing ideal conditions for workmen. Six additional mills will be started within a month, and eventually the tin plate plant will consist of 36 mills.

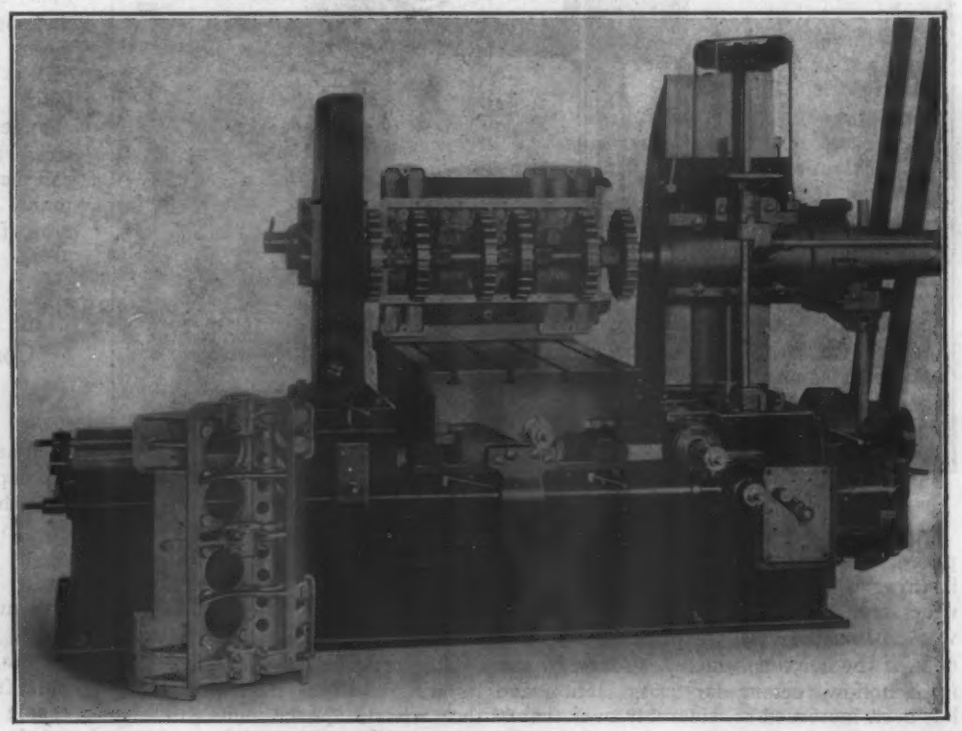
A party of officials of the company visited the new department shortly after work had commenced and inspected it. The party consisted of President B. F. Jones, Jr., Vice-President Willis L. King and William L. Jones, Secretary W. C. Moreland, with James Laughlin, Jr., and the heads of the principal departments in the company's various plants. They were shown through all departments of the Aliquippa Works by W. H. Lewis, general superintendent. The new industrial town of Woodlawn, being built by the company for the men at Aliquippa, was of marked interest. Here 500 houses are being built and families are moving in at the rate of two a day.

Frank M. Williams, State Engineer and Surveyor, Albany, N. Y., has issued a map showing the line of the new barge canal, which gives the limits and designations of contracts, the line of the present Erie, Champlain and Oswego canals, cross-sections of construction work, and the profile and elevations of lock levels. Different colors are used to show the sections under contract, those over 75 per cent. completed and those completed. The map is of much interest to all who expect to use this canal in the transportation of their materials or products.

A Fosdick Boring and Milling Machine Job

The accompanying illustration shows an interesting operation being performed on the aluminum crank case of a Cino gas engine in the shops of Haberer & Co., Cincinnati, Ohio. All the operations of boring and milling are done on the No. 0 horizontal boring, drilling and milling machine, built by the Fosdick Machine Tool Company of that city, which was illustrated and described in *The Iron Age* April 29, 1909. The illustration shows two castings. The one in the machine is being operated on and a finished casting stands on the floor at the left of the machine.

The top face is milled first and the piece is then put in a jig, where all the holes are drilled. After this operation is completed the piece is returned to the horizontal position, where the bearings for the crank and cam shafts are bored by a double boring bar. Facing the ends of the crank shaft bearings is the next operation, which is accomplished by mounting six straddle mills on a bar, with adjustable spacing collars between them. Each mill takes a cut ¼ in. wide on each of the six faces at the same time, with a feed of 0.0155 in. per revolution of the spindle, which runs at 30 rev. per min., thus giving a peripheral speed to the cutters of about 85 ft. per min. The time required for completing the four operations, including the setting up and taking down of the work, is 15 min.



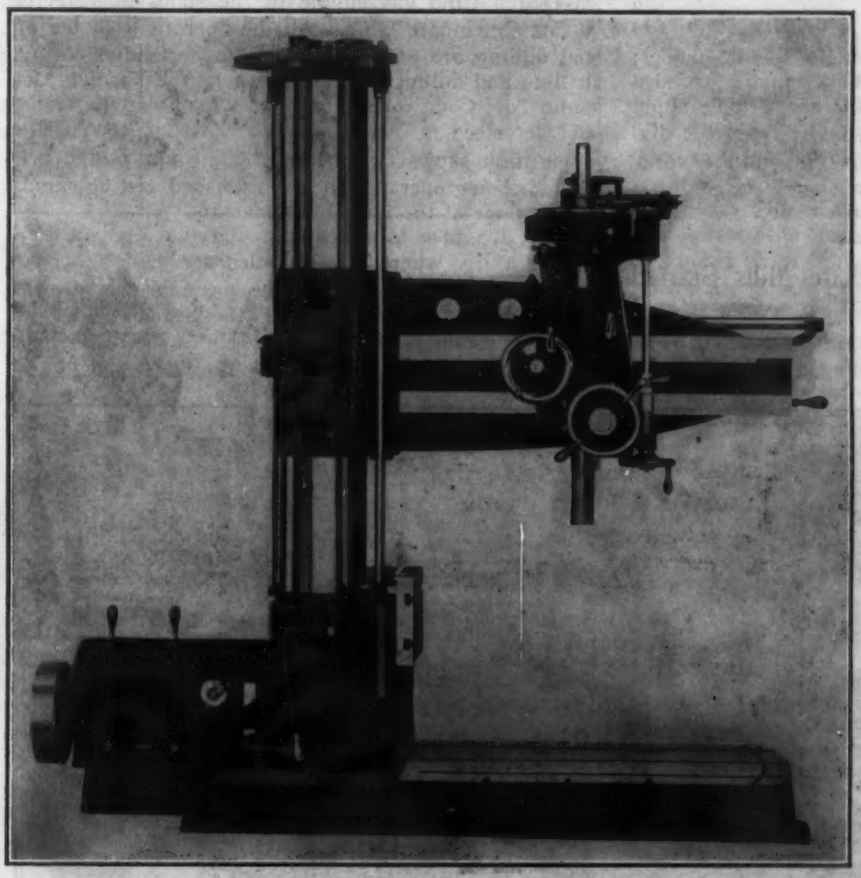
Aluminum Gas Engine Crank Cases Being Bored and Milled in a Horizontal Boring, Drilling and Milling Machine Built by the Fosdick Machine Tool Company, Cincinnati, Ohio.

The Universal Portland Cement Company has adopted a voluntary accident relief plan for the benefit of its employees, corresponding with that which has been made operative among the other subsidiaries of the United States Steel Corporation. It became effective May 1.

Another New Mueller Radial Drill

A radial drill of new design having either 4 or 4½-ft. arms has been brought out by the Mueller Machine Tool Company, 2425 Colerain avenue, Cincinnati, Ohio, to meet the requirements of modern drilling. Like the drill of the same maker which was illustrated and described in *The Iron Age* April 28, 1910, it is of massive construction, the convenience of the operator has received special attention and the machine embodies a number of features found in the Mueller standard line of drills.

As will be noticed from the illustration, the strength and massiveness of the machine are apparent in every part. The construction of the column is very heavy, insuring rigidity and eliminating vibration, two things necessary to the production of high grade, accurate work. Internal ribs are provided to add to the stiffness of the column, which is ground to size. The arm is of hollow rectangular cross section and its weight has been increased considerably over that of the earlier models. Instead of the two binder handles generally employed for locking the arm to the column, only one is used. The movement of the arm is secured by a coarse pitch screw, with a conveniently located controlling handle; the arm can be lowered at twice the speed at which it is raised.



The 4-Ft. Radial Drill Now Built by the Mueller Machine Tool Company, Cincinnati, Ohio.

In the redesigning the head has also been strengthened. It is traversed on the arm by a rack and pinion and two small binder handles lock it to the arm in any position. The operating handle for the back gears, which are located on the head, is placed in front of the operator in a convenient position. The back gear arrangement is simple and can be engaged or disengaged while the machine is in motion without shock. Unusually heavy tapping operations can be taken care of by the tapping mechanism, which is provided with a device to prevent the taps breaking and permits them to be backed out at the same or an accelerated speed.

Twenty-four changes of speed are available for the spindle, which is equipped with a depth gauge and automatic stop. Starting, stopping and reversing of the spindle are controlled by a handle on the head in front of the operator. A brass plate attached to the arm of the machine enables the operator to select the proper speeds for different kinds of drilling and to make the necessary changes without stopping the machine. The spindle is provided with quick advance and return and is counterbalanced. A combination positive and friction feed is provided, which is arranged for eight changes for each rate of spindle speed and any one of the feeds can be substituted for any other while the machine is in motion.

The speed box has been redesigned and in its present form is very powerful. It is of the geared friction type and provides for 12 changes. These are obtained by moving one of the long upright levers in combination with the short handle passing over the circular plate shown at the right of the feed box. The three positions of this handle provide for the slow, medium and fast ranges, and the four speeds in each range are obtained by the other two levers, two through each lever. When these levers are in their middle positions no gears are in mesh. In the illustration the drill is shown equipped with a plain box table and speed change gear box, but if desired a universal box table can be furnished and a cone pulley belt drive or any type of direct-connected motor drive.

The Whitaker-Glessner Company's Improvements

The Whitaker-Glessner Company, Wheeling, W. Va., has purchased a tract of 50 acres at Yorkville, near Martins Ferry, Ohio, on which will be built its new open hearth steel plant. Its Whitaker mills in Wheeling and Laughlin mills in Martins Ferry require annually 65,000 to 75,000 tons of sheet and tin plate bars, now purchased from outside steel makers. The new steel plant will not only furnish all the steel required, but will also consume the scrap from these mills and from the works of the Wheeling Corrugating Company, a subsidiary, all of which scrap is now sold in the open market.

The Whitaker Works consist of nine sheet and three black plate mills with an annual capacity of 42,000 to 45,000 tons. The Laughlin Works consist of six sheet mills, with an annual capacity of 21,000 to 24,000 tons. The Wheeling Corrugating Company operates two plants, one in Wheeling and one in Martins Ferry, and is the finishing and selling end for the Whitaker and Laughlin sheet and tin plate mills. Its equipment includes 13 tinning stacks or pots, seven galvanizing pots for sheets and seven galvanizing pots for miscellaneous products. It is one of the largest and best known ceiling manufacturers, and operates black ware and galvanized ware factories. Another subsidiary is the Portsmouth Steel Company, at Portsmouth, Ohio, whose plant comprises five open hearth furnaces, with a sixth furnace that

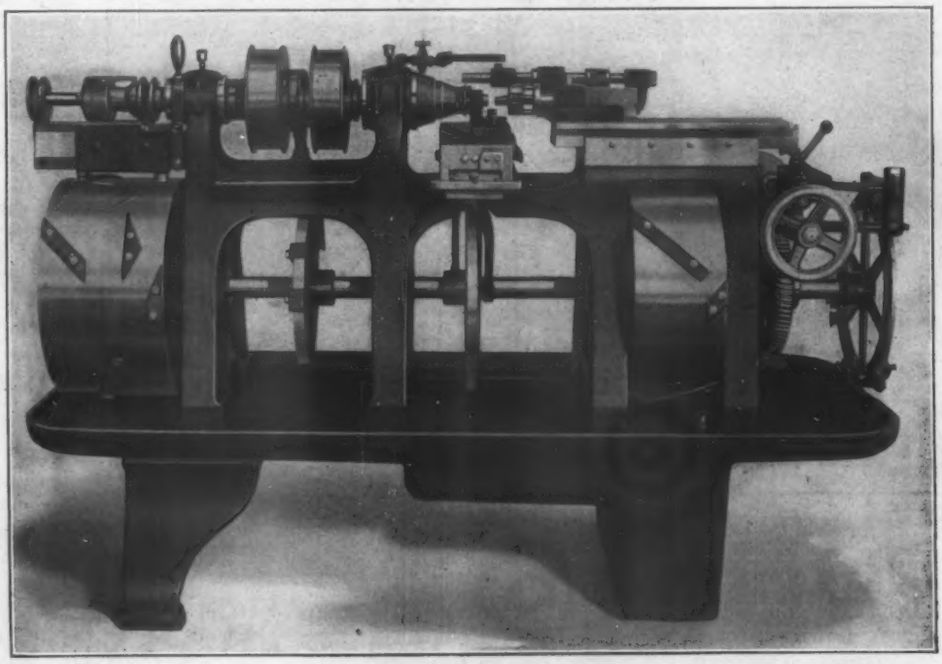
will be fired in July; one blooming mill with another building that will be ready for use in July, when the old mill will be dismantled; one jobbing mill with three other buildings under course of construction; one 84-in. three-high plate mill, and one three-high special tie plate mill. At present this plant is finishing about 7500 tons per month, and when the improvements mentioned are complete the output will be increased to about 12,000 tons per month.

With all the additions and enlargements completed, the steel producing and finishing departments of the Whitaker-Glessner Company will be well balanced, and it does not anticipate any difficulty in keeping them operating steadily.

The National Plain Automatic Screw Machine

A new model of automatic screw machine has been placed on the market recently by the National Sewing Machine Company, Belvidere, Ill. Simplicity of operation, low maintenance expense, easy adjustment for the various classes of work, and simplicity in changing the cams are among the important characteristics it is claimed to have.

The rod stock is fed to the tools by a positive cam movement which feeds it in exact lengths. The spindle is driven by two belts, one for the forward and the other for the reverse motion, operated by friction clutches. This clutch mechanism is said to be quick in operation and positive in its reverse motion, thus enabling a uniform length of thread to be cut in quick time. The feed is driven by a positive clutch and a system of differential planetary gears renders any feed instantly available, from the slowest to the fastest, which are in a ratio of 1 to 48.



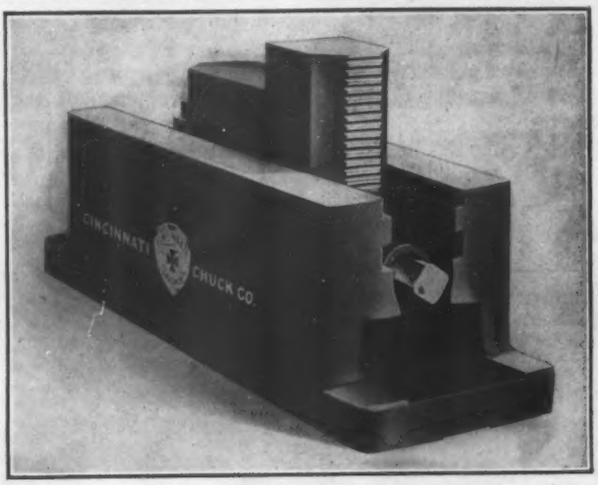
The No. 3 Plain Automatic Screw Machine Built by the National Sewing Machine Company, Belvidere, Ill.

The turret is revolved in a horizontal position which places the leverage of the tools inside the radius of the lock bolt, thus insuring accurate alignment and quick and positive locking of the turret. For the same amount of floor space the machining capacity is declared to be longer than that of any other machine. The cross slide is operated independently and is provided with a stop which secures uniform size in forming operations.

Two styles and two sizes of machines are built in both the turret and plain types, and these are so constructed as to allow taper attachments for making taper pins and similar work to be used. Thread rolling, knurling, side drilling and slotting can also be done on these machines. The machine shown in the illustration is known as the maker's No. 3 plain machine, which will handle ⅞-in. stock. The turret has four holes and the machining length is 9 in. The spindle pulley is 9 in. in diameter and its face is 1⅛ in. wide. The amount of floor space required by this machine is 4 ft. wide by 6½ ft. long.

The New Cincinnati Face Plate Jaw

The Cincinnati Chuck Company, Spring Grove avenue and Sassafras street, Cincinnati, Ohio, has brought out a new type of face plate jaw, which is shown in the accompanying illustration. Its principal feature is the manner in which the screws are mounted in hardened steel bushings, which is practically the same as that used in the four-jaw independent chuck of this company, an illustrated description of which was printed in *The Iron Age* October 1, 1908. A full bearing for the trunnion and screws is provided by these bushings and they receive the end thrust on their hardened full circular faces, thus minimizing wear and the resultant end play.



The New Face Plate Jaw Made by the Cincinnati Chuck Company, Cincinnati, Ohio.

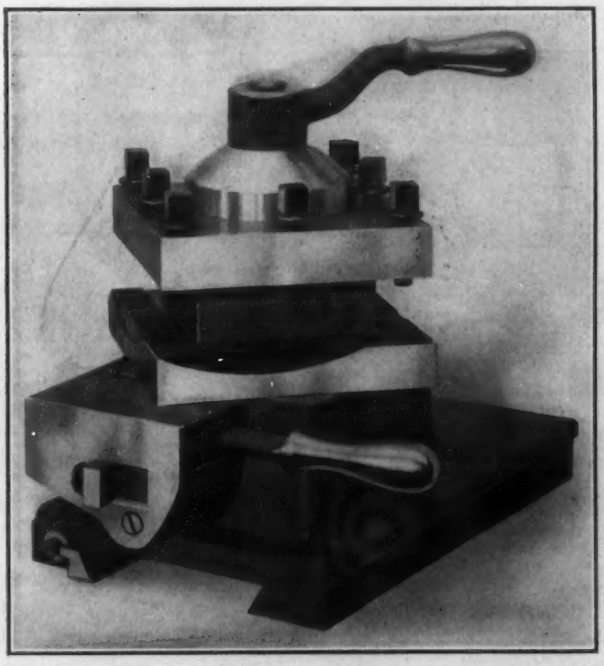
The contrast between this jaw and those of the ordinary type, where the screws are mounted in semi-circular bearings and receive the thrust on semi-circular shoulders, formed in the cast iron jaw shell, is at once apparent. When these become worn in use it is practically impossible to eliminate the play. The patented bushings with which this jaw is equipped provide double the wearing area on hardened steel surfaces and wear three times longer. If any end play does develop it can be quickly taken out by any machinist and the chuck made as good as new in this

respect. Another office of these bearings is to keep the screws in alignment with the jaws, thus preventing tilting of the screw and consequent cutting of the threads. These jaws are provided with bolt holes for fastening them to the face plate, and for adjusting them to different diameters of work the screw is provided with a square nut on the end.

A New Lodge and Shipley Turret Tool Post

A new model of turret tool post, recently designed by the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, possesses a number of features of interest. The principal ones are that eight positions of the turret are available as the tools can be set diagonally as well as square with the cross slide, and firm support is given to each tool as it is clamped well forward of the center, and the clamping of the binding lever does not appreciably change the position of the tool. This tool post is well adapted for use where several tools can be employed on the one job, and is made for each size of lathe built by the company.

The lower block of the attachment is interchangeable with the compound rest slide and, as will be noticed from the illustration, is fitted to the carriage



The New Turret Tool Post Made by the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio.

dovetail by a taper gib. The binder lever at the top is carried on a vertical stud secured in the base and passing through the turret. Steel is employed for the tool post, and each of the four tools rests upon a serrated and hardened bolster or rocker, and is held in place by two hardened cap screws. Adjustment in the hight of the point of the tool can be made by rocking the bolster in its curved seat. The position of the tool cannot change when the screws are once tightened, because before the bolster could slip and make this possible one of the cap screws must be loosened to permit one end of the bolster to rise.

A taper bearing concentric with the vertical stud but not touching it is provided for the turret to revolve on and a bushing tapered to fit the turret bearing is slipped over the stud. An adjusting nut, which is threaded to fit the stud, bears against the upper end of the taper bushing, and by tightening this nut the bushing can be pushed down so as to do away with any play in the bearing and yet permit the turret to revolve freely. The space between the end of the taper bearing and this adjusting nut is covered by the large collar between the binding lever and the turret to prevent chips from getting into the bearing. The larger end of the taper bearing is up. In this way the turret is held to the horizontal bearing against the lower block, and when the binder lever is tightened no change occurs in the position of the turret and the tools. A locking bolt, whose movement is controlled by the handle at the front of the lower block, drops into notches in an index ring and serves to locate the turret accurately in any one of its eight positions. This bolt is held against the index ring by a coil spring, so that it will drop instantly into the notch when the proper point is reached. The tension of this coil spring is adjusted by a screw shown in the illustration just beneath the locking bolt, and a taper gib is provided to take up wear in the bearing of the locking bolt.

The Mechanical Engineers' Spring Meeting

The programme for the spring meeting of the American Society of Mechanical Engineers at Atlantic City, N. J., May 31 to June 3, is as follows:

Tuesday Afternoon and Evening

Informal reunion of members in the parlors of the Marlborough-Blenheim Hotel.

Wednesday Morning

PROFESSIONAL SESSION

Business meeting; reports of committees; tellers of election; new business.

Papers on Machine Construction and Operation

"The Shockless Jarring Machine," by Wilfred Lewis.

"A Comparison of Lathe Headstock Characteristics," by Prof. Walter Rautenstrauch.

"The Strength of Punch and Riveter Frames Made of Cast Iron," by Prof. A. L. Jenkins.

Wednesday Afternoon and Evening

The afternoon is left unassigned to give opportunity for sightseeing. In the evening there will be an entertainment on the Steel Pier.

Thursday Morning

PROFESSIONAL SESSION

Miscellaneous Papers

"The Mechanical Engineer and the Textile Industry," by H. L. Gantt.

"The Elastic Limit of Manganese and Other Bronzes," by J. A. Capp.

"The Hydrostatic Chord," by R. D. Johnson.

"The Resistance of Freight Trains," by Prof. Edw. C. Schmidt.

Thursday Afternoon

GAS POWER SECTION

Business meeting and reports of committees.

Papers

"A Regenerator Cycle for Gas Engines Using Sub-Adiabatic Expansion," by Prof. A. J. Frith.

"Gas Engines for Driving Alternating-Current Generators," by H. G. Reist.

"Two Proposed Units of Power," by Prof. Wm. T. Magruder.

"Some Operation Experiences with a Blast Furnace Gas Power Plant," by H. J. Freyn.

Thursday Evening

Reception and dance. Honorary membership will be conferred on Rear-Admiral George W. Melville, U. S. N., retired, who will make a brief address.

Friday Morning

PROFESSIONAL SESSION

Papers on Power Transmission

"Improvements in Lineshaft Hangers and Bearings," by Henry Hess.

"Experimental Analysis of a Friction Clutch Coupling," by Prof. Wm. T. Magruder.

"An Improved Absorption Dynamometer," by Prof. C. M. Garland.

"Critical Speed Calculation," by S. H. Weaver.

The choice of Atlantic City should prove a pleasant change from the practice followed for the past few years of holding these meetings in cities where it was possible to visit places of interest and inspect engineering enterprises, as there will be abundant opportunity for renewing acquaintances instead of devoting so much attention to matters outside of the interests directly related to the society.

Steam and Air Flow Meters

Recording and Indicating Instruments Developed by the General Electric Company

Over four years ago experiments were begun at the General Electric Company, Schenectady, N. Y., with a view to perfecting a practical steam meter. There have been developed a recording steam flow meter, two types of indicating steam flow meters and an indicating air flow meter, each of which will accurately measure the rate of flow of steam, air or other gases, as the case may be, in any size pipe, under any conditions of pressure and temperature met in commercial practice.

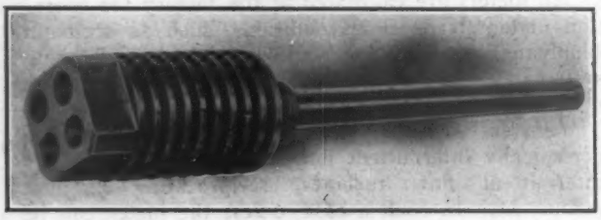


Fig. 1.—The Nozzle Plug for the General Electric Flow Meters.

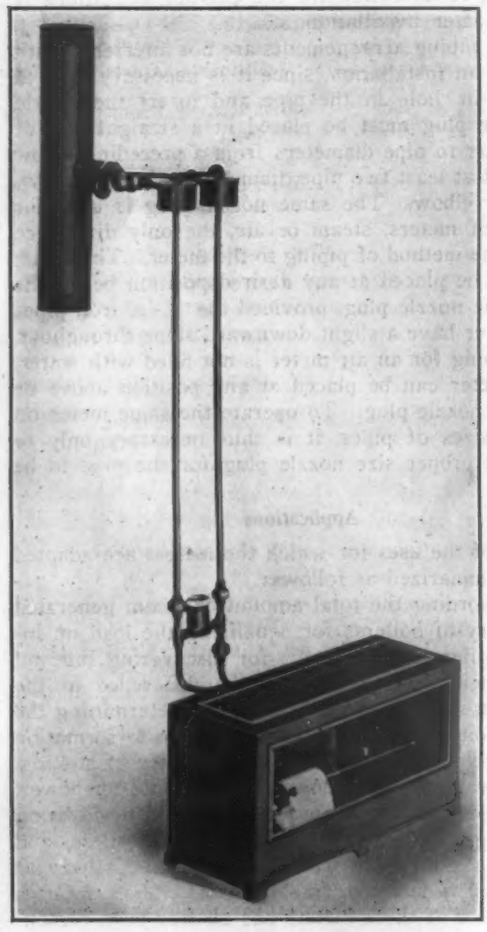


Fig. 2.—The Type R, Form D, Recording Steam Flow Meter.

The principle governing the action of the flow meter is a modification of that of the Pitot tube. A brass nozzle plug, screwed into the pipe at the point where the flow is to be measured, Fig. 1, carries two sets of openings, a leading set, facing the direction of flow and extending diametrically across the pipe, and a trailing set, consisting of two openings at 90 degrees and one at 180 degrees to the direction of flow. The impingement of the steam against the leading openings sets up in them a pressure equal to the static pressure, plus the pressure due to the velocity head, while the trailing set is acted on by the static pressure less that due to the velocity. The difference in these values is a measure of the velocity, and for constant temperature and pressure gives the rate of flow. The pressures existing in the two sets of openings are communicated through separate longitudinal tubes to the outer end of the plug, and from there by ¼-in. iron pipes to the meter.

Recording Steam Flow Meter

The recording steam flow meter, type R, form D, Figs. 2 and 3, is a curve drawing instrument, accurately calibrated to record the total rate of steam flow in pounds per hour in any diameter pipe at any condition of pressure, temperature or moisture. In this meter there are two cylindrical hollow cups filled to about half their hight with mercury and joined together at the bottom by a tube. This U-shaped combination is supported on and free to move as a balance about a set of knife edges. The two pressures obtained by the nozzle plug are communicated to the cups by flexible steel tubing, whereupon the difference in pressure is equalized by a rising of mercury in the left-hand cup and a falling in the right-hand cup. Due to the displacement of the mercury, the beam carrying the cups tilts on the knife edges until the moment of the counter weights on the extreme right of the meter exactly balances the moment caused by the displacement of the mercury in the left-hand cup.

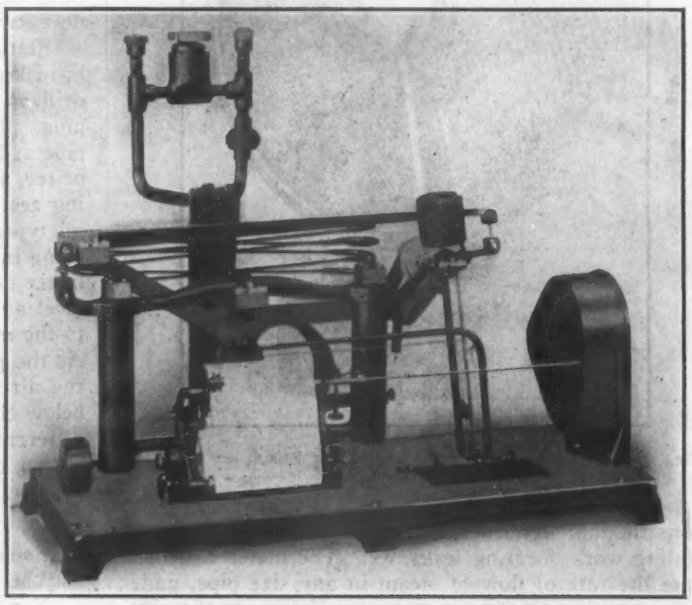


Fig. 3.—Mechanism of the Recording Meter with Automatic Pressure Correction.

The motion of the beam is multiplied by levers and is registered by a pen upon a continuous record sheet, which is fed along at the rate of 1 in. per hr. by an eight-day clock movement driving a drum. Charts are supplied in sizes to measure a flow of from 2000 to 240,000 lb. per hr., and of sufficient length to last one month. The rate of flow can be read at any instant or the average rate of flow calculated for a given time.

The meter is adapted to any condition of pipe diameter, pressure, superheat or moisture by a hand adjustment of a correction weight on a graduated arm. A chart supplied with the meter shows the correct position for any existing condition. If the pressure in the steam main varies more than 10 lb. from normal, compensation is necessary for the error thus intro-

duced. An automatic pressure correction device, consisting of a hollow spring, similar to the pressure spring in a steam gauge, is connected so as to be influenced by the static pressure of the steam at the point where the flow is being measured. Any variation of the static pressure causes the spring to expand or contract, and this movement actuates the small correction counterweight and affects the movement of the pen so that the recorded rate of flow is correct.

The meter weighs 55 lb. complete and is finished in nickel and dull black. As the glass front of the cover is removable, the working parts of the meter are readily accessible at any time.

Indicating Steam Flow Meters

The type I, form F, steam flow meter, Fig. 4, will meet general requirements where an indicating rather than a recording instrument is required. Its simple

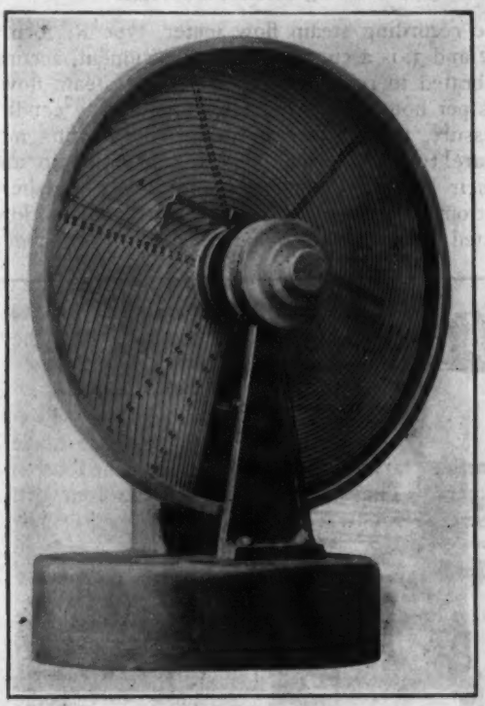


Fig. 4.—The Type I, Form F, Indicating Steam or Air Flow Meter.

construction, light weight and durability adapt it for testing work, locating leaks, &c. The meter will indicate the rate of flow of steam in any size pipe, under any conditions of temperature or moisture, at the pressure range for which the individual meter is designed. These ranges are: Low pressure, 10 to 40 lb. absolute; medium pressure, 20 to 80 lb. gauge; high pressure, 75 to 225 lb. gauge.

The meter consists of an iron casting, cored out to form a U tube, and partially filled with mercury. The difference in pressures, as transmitted from the nozzle plug, causes a difference in the mercury levels, and the displacement of the mercury actuates a pulley through a small float suspended by a silk cord. The pulley moves a small U magnet on the end of the shaft next to the dial in proportion to the change in level of the mercury in the U tube. The indicating needle is mounted in a separate cylindrical casing. The pivoted end consists of a bar magnet, free to turn in the same plane as the magnet on the inside of the meter. The mutual attraction of the two magnets keeps them parallel; a packed joint to transmit the motion of the pulley to the indicating needle is thus eliminated.

Proper adjustments for the existing conditions of pipe diameter, pressure and temperature are made by setting the graduated cylinder which actuates the rack carrying the pointer. When these settings are made the rack is rotated by hand until the pointer coincides with the indicating needle. The point on the calibrated dial at the intersection of the needle and pointer gives the instantaneous rate of flow in pounds per hour per square inch of pipe area.

This meter is finished in nickel and black japan and weighs only 25 lb. A leather hand strap is supplied for carrying it.

Air Flow Meter

The type I, form F, indicating air flow meter is identical in principle and method of operation with the type I, form F, indicating steam flow meter, except that water is used in the U tube as a working fluid and the chart dial is calibrated to read in cubic feet of free air per minute at 70 degrees F. per square inch of pipe area. The air flow meter is made in two ranges: Low pressure, 12 to 35 lb. absolute, and high pressure, 10 to 120 lb. gauge.

Calibration and Installation

All meters are calibrated at the factory for operation under steady flow conditions, such as occur in supplying steam to steady flow turbines, to heating systems, for manufacturing purposes, &c.; it is not necessary to recalibrate the meter after installation. The meters will not, however, accurately measure a periodically intermittent flow, such as is required by intermittent flow turbines, reciprocating engines, pumps, &c. In such a case, unless the meter can be placed so close to the boilers that steady flow conditions exist, recalibration for the existing conditions is necessary after installation.

Station piping arrangements are not interfered with in making an installation, since it is necessary only to drill a ½-in. hole in the pipe and insert the nozzle plug. The plug must be placed in a straight run of pipe at least 10 pipe diameters from a preceding elbow or tee, and at least two pipe diameters before a following tee or elbow. The same nozzle plug is used for all types of meters, steam or air, the only difference being in the method of piping to the meter. The steam meter can be placed at any desired position below the level of the nozzle plug, provided the ¼-in. iron pipes to the meter have a slight downward slope throughout. As the piping for an air meter is not filled with water, the air meter can be placed at any position above or below the nozzle plug. To operate the same meter on different sizes of pipes, it is thus necessary only to obtain the proper size nozzle plug for the pipe to be metered.

Applications

Some of the uses for which the meters are adapted may be summarized as follows:

For recording the total amount of steam generated by a battery of boilers; for equalizing the load on individual boilers of a battery; for discovering internal leaks in boilers, as shown by the difference in the water input and the steam output; for determining the deterioration of efficiency of a boiler due to formation of scale, &c.; for determining the efficiency of stoking, &c.; for measuring the amount of steam sold for power, heating or manufacturing purposes, and for discovering losses originating from leaks between boilers and points of consumption, which could not be otherwise detected, as in defective traps, gaskets, valves, &c.

The value of these meters has already been demonstrated in many instances. In one case the boilers of a factory consumed one-quarter the amount of coal on Sundays, when the factory was completely shut down, as on week days, when in full operation. The engineer knew that steam was being lost, but was unable to locate these leaks in the several miles of all sizes of steam pipes. The steam flow meter located the leaks and effected a very considerable saving in steam.

Meters have been tried out in more than 50 power plants and factories and are claimed to have been found thoroughly practical, being accurate, easy to install, interchangeable under all conditions, light, economical, cheap and durable.

The Bashlin Air Chuck

A Pneumatically Operated Device for Small Lathes

For the rapid handling of castings of irregular shapes the Bashlin Tool Works, Grove City, Pa., has brought out a line of chucks in which the work is held in place by a constant pressure of air on an air piston and released the instant the supply is cut off. With this chuck it is said that castings such as valves, stop cocks, inspirators, faucets and bath and basin cocks can be handled economically and efficiently regardless of their irregularity of shape. Two special features of the chuck are the screening of the air before it enters the piston chamber and the placing of the compression release spring back of the piston instead of on the piston spindle under the cone. This construction prevents dirt and scale entering the piston chamber and damaging the valve and also provides easy and quick access to all parts of the chuck.

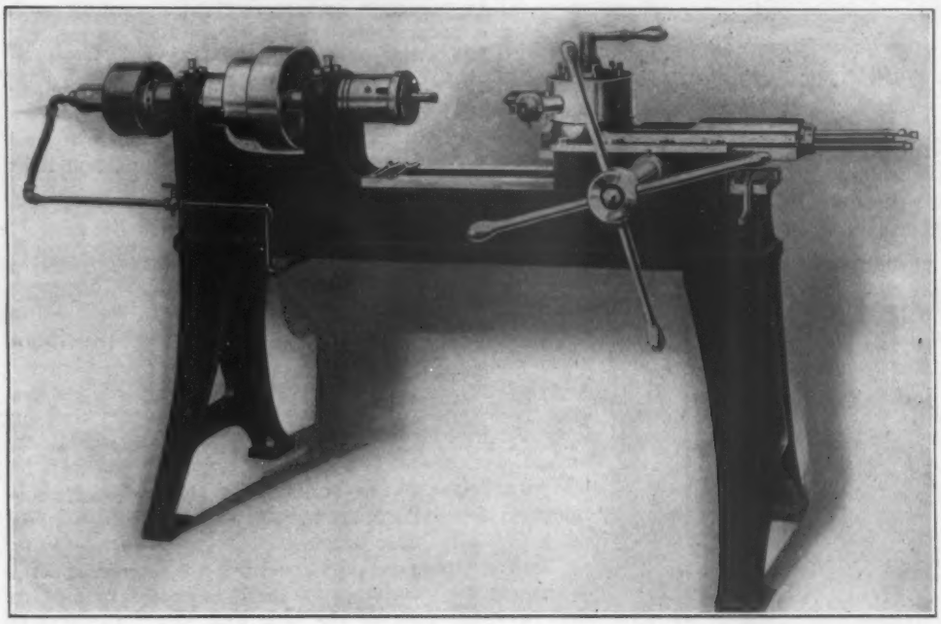


Fig. 1.—A Lathe Equipped with the Bashlin Four-Hinge Chuck, Made by the Bashlin Tool Works, Grove City, Pa.

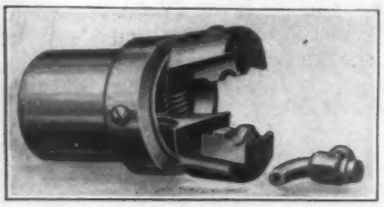


Fig. 2.—View of the Alligator Chuck.

These chucks are made in two styles, the alligator and the four-hinge with one master collet which will admit either style of jaw. This is another advantage, as only one collet is required instead of a special master collet for each different style of jaw. Fig. 1 shows the four-hinge chuck in position on a monitor lathe, Fig. 2 is a detail of the alligator type chuck, while Fig. 3 gives the unassembled parts of the two styles, and Fig. 4 shows a releasing tap holder made by this company.

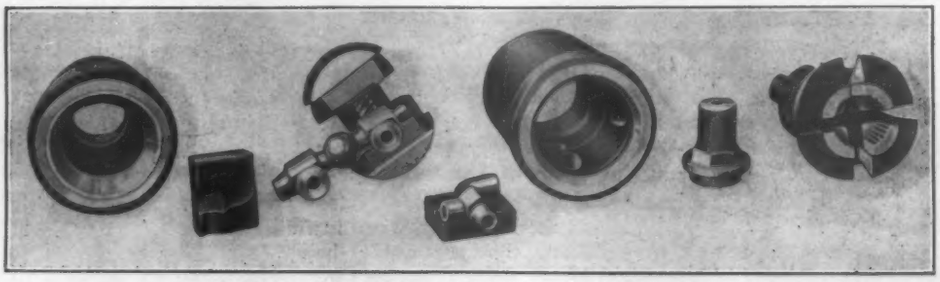


Fig. 3.—Details of the Alligator and Four-Hinge Chucks.

With the four-hinge chuck illustrated in Fig. 1 round or hexagonal work such as valve stems, stuffing nuts and bonnets can be machined. When handling round or threaded work the pieces can be chucked or released without stopping the machine. For irregular work the chuck is adjustable to the shape of the casting by the use of false jaws, which it is said enables the operator to handle this class of work more easily and rapidly than would be possible with other kinds of chucks. The master jaws are fitted to the shank by hinge jaws whose cost is only about half that of spring collets. Another advantage claimed for these jaws is that they are not so apt to break as the collets. Four standard sizes of chuck are made regularly, but larger sizes can be furnished as special equipment. The specifications for the four ordinary sizes are as follows:

	No. 1.	No. 2.	No. 3.	No. 4.
Capacity of chuck, inches	1	2	3 to 4	6
Largest outside diameter, inches	4	5¼	7¼	8¾
Length of chuck, inches	4	6¼	7⅛	8
Approximate weight, pounds	13	22	39	54

The alligator chuck will hold irregular shaped work like plumbers' brass work, inspirators, valve bodies and air and gas cocks and pieces of a similar character. This chuck is provided with jaws projecting beyond the collet. This makes the chuck adaptable for long irregular castings and large pieces 5 and 6 in. in diameter can be chucked. The chuck opens and closes instantly so that there is no time lost in chucking and releasing the work. Only one standard size is made in this chuck, but the manufacturer is prepared to furnish special sizes on demand. The standard size has a capacity of 2 in. and a maximum external diameter of 5½ in., is 8 in. long and weighs 24 lb.

In Fig. 3 the left portion of the engraving shows the master collet with the alligator chuck and false jaws while the other part shows the collet with the four-hinge chuck and false jaws. In connection with the views of these chuck details pieces of work done with this equipment are also shown.

In Fig. 4 is illustrated another of this company's products, which is known as the Bashlin releasing tap holder. This holder is designed for both the highest and lowest speeds of tapping and is said to have overcome the defects and expense incident to the old style models. The gripping is firm and when reversed, even though revolving at a high rate of speed, the release is

instantaneous, without shock or clatter. The reversal of the direction of its motion is instant and automatic on throwing the belt shifter and the turret slide moves backward without any additional effort. One of the special features of this device is the absence of stationary engaging pins which hammer, clatter and wear off, and this it is stated prevents injury to the alignment of the turret or spindle bearings and is of importance to the usefulness and life of the monitor lathe with which it is used. Special attention has been paid to the lubrication of the holder and the provisions for

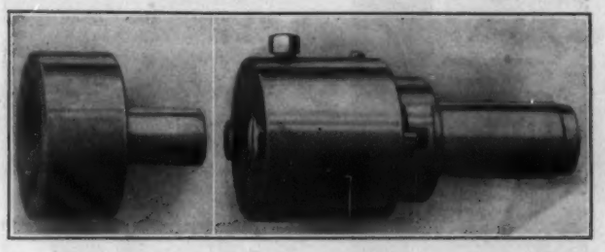


Fig. 4.—The Bashlin Releasing Tap Holder.

it are very different from those of other models now on the market.

Six sizes of the device are manufactured and the principal dimensions are given in the subjoined table:

No.	Capacity. Inches.	Tap hole in head. Inches.	Diameter of shank. Inches.	Length of shank. Inches.
1	0 to ¼	11/32	5/8	1⅝
2	3/16 to ½	15/16	¾	1½
3	⅛ to ¾	13/16	⅞	1¾
4	¼ to 1	1 1/16	1	2
5	⅜ to 1½	1 5/16	1¼	2½
6	½ to 2	1 7/16	1½	3

This tap holder was given a thorough trial in a number of different and difficult places before being placed on the market.

The First Girod Furnace in This Country

The Simonds Mfg. Company, Fitchburg, Mass., with branch works at Chicago, Ill., and Montreal, Canada, is installing in the crucible steel department of its Chicago plant a Girod electric furnace, the first of this type to be built in the United States. The company has acquired 60 acres of land at Lockport, N. Y., with railroad and canal connections and with ample power from Niagara Falls, and on this site will build a plant in which it is expected to melt a portion of the steel in electric furnaces in case the requirements of the company are met by the experimental work to be done at Chicago.

The company does not expect to do much if any electric refining of its higher grades of steel, but will employ the same raw materials as at present, consisting largely of Swedish melting bars, the expectations of the electric process being mainly in the line of uniform production, elimination of crucible troubles and reduction in labor costs. The new steel works at Lockport represent an increased investment of $250,000 to $300,000, and the output will be from two and one-half to three times that now made at Chicago. At Lockport electric furnaces of larger size than the experimental one will be installed if the results at Chicago meet expectations. As indicated in a list of electric furnace installations in various countries recently published in these columns the Girod furnace is in use at a number of European works, the capacities ranging from two to 12½ tons.

The Coal Distillation Company of America, sole agent for the Collin system of regenerative by-product coke ovens, has opened an office at 1211 Singer Building, New York. A total number of 4245 of these ovens is stated to have been in successful operation January 1, 1910, in Germany, England, France, Belgium, Spain, Russia and China. The company is the American representative of the Actien Gesellschaft für Kohlendestillation, Düsseldorf, Germany, and the Coal Distillation Company, Middlesbrough and London, England.

Capitalization and Earnings of Industrial Corporations

Poor's Manual Company is about to bring out "Poor's Manual for Industrials," a new publication, in which is given a compilation of statistics gathered by correspondence with the corporations of the United States and from their reports. Not all companies reported, but the figures given in the summation of the statistics may be taken as approximately correct. The capitalization of the various classes of corporations in stocks and bonds is given as follows:

	Stock.	Bonds.	Total.
Light, water and power	$2,108,233,079	$1,392,653,050	$3,500,886,129
Mining	2,001,925,586	66,850,265	2,068,775,851
Telephone and telegraph	788,709,274	352,025,050	1,140,734,324
Mfg. and miscell.	8,233,035,721	2,585,694,207	10,818,729,928
Totals	$13,131,903,660	$4,397,222,572	$17,529,126,232

The summation of interest and dividends for all companies follows, together with a statement of income account and percentage of earnings and expenses for all companies making complete returns. The gross earnings of manufacturing and miscellaneous companies making complete returns are put at $1,595,905,535; operating expenses, $1,284,411,277; net earnings, after deducting $58,797,245 interest, $252,696,913; dividends, $140,485,369, leaving, after other deductions of $25,538,816, a surplus of $86,672,728:

Interest and Dividends, All Companies.

	Interest.	Rate.	Dividends.	Rate.
Light, water and power	$69,219,335	4.97	$63,867,681	3.03
Mining	3,741,783	5.59	58,866,089	2.94
Telephone and telegraph	18,463,462	5.24	37,356,517	4.73
Mfg. and miscellaneous	140,251,087	5.42	368,721,516	4.47
Totals	$231,675,667	5.27	$528,811,803	4.02

Income Account of All Companies Making Complete Returns.

	Total.
Gross earnings	$2,165,786,215
Operating expenses	1,629,171,411
Net earnings	$536,614,804
Interest	109,483,337
Balance	$427,131,467
Dividends reported	227,787,831
*Other deductions	54,570,981
Surplus	$144,772,655
Stock	4,924,774,780
Bonds	2,238,966,992
Total	$7,163,741,772

* May include dividends unreported.

Percentage of Earnings and Expenses.

	Light, water and power.	Telephone and Min'g. telegraph.	Mfg. and misc.	Total.
Per ct. gross to capital	15.27	32.79	25.50	37.51	30.23
Per ct. net to capital	6.84	9.35	9.34	7.32	7.49
Per ct. expenses to gross	55.20	71.49	63.34	80.48	75.22
Per ct. interest to bonds	4.88	5.07	5.24	4.81	4.88
Per ct. divid's to stock	3.99	5.29	5.67	4.63	4.62

Lower Lake Stocks of Lake Superior Ores.—Following the custom of years the shippers of Lake ores at Cleveland collected the statistics of ore on Lake Erie docks May 1, 1910, which show a total of 5,278,251 tons as compared with 5,370,268 tons on May 1, 1909, a reduction of 92,017 tons. These figures naturally have less significance than in the years when the ore trade was in the hands of merchant firms and when the furnace companies carried comparatively little ore in their yards. Estimates of the amount of Lake Superior ore in blast furnace yards May 1, 1910, range from 10,000,000 to 12,000,000 tons. It would thus appear that between four and five months' supply is on docks or in furnace yards.

A New Wadsworth Core Machine

A Vertical Jar-Ramming Core Forming Machine

The Falls Rivet & Machine Company, Cuyahoga Falls, Ohio, will have on exhibition at the convention of the American Foundrymen's Association in Detroit, June 6 to 10, a new type of core machine known as the Wadsworth vertical jar-ramming core forming machine.

The mechanism is shown in Fig. 1. The machine

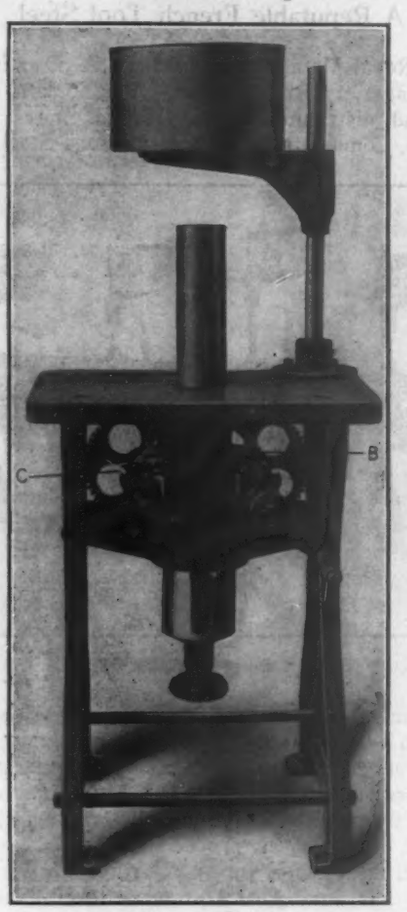


Fig. 1.—The New Wadsworth Core Machine Made by the Falls Rivet & Machine Company, Cuyahoga Falls, Ohio.

consists of a table supported upon legs, between which the operating mechanism is situated. The core is formed in a vertical shell or core box, sand being supplied from the swinging hopper above the machine. As the sand is fed into the core box or shell the crank at the right is slowly rotated, so that the ratchets upon the shafts at each side of the center of the machine alternately lift and drop the core box or core tube. The stool which supports the entire mechanism for forming the core has, projecting from it, wings in the form of pawls. These wings rest on two ratchets, so that the mechanism is lifted from both sides at the same time. The ratchets are kept in proper position by the gears seen at the back of the machine. The core tube A works in a sleeve, B, and is controlled by the adjusting screw C. This screw is first set to the proper length of core to be made and then the tube forced through the table of the machine by lifting the adjusting screw and turning it into the groove at one side of the vertical slot, as shown.

For making an ordinary straight core the straight tube itself is all that is necessary. For irregular cores special dies or core boxes are introduced on the inside

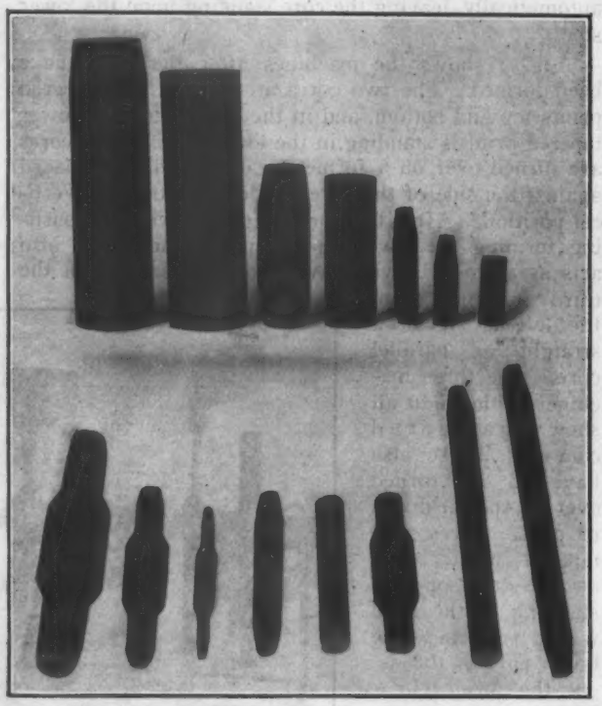


Fig. 2.—A Group of Cores Made on the Machine.

of the tube A, and the jarring motion of the machine compacts the sand into the box. A group of cores made in this machine is shown in Fig. 2. At the rear are shown straight cores and cores with tapered prints on one or both ends. The front row contains a number of chambered cores. The core at the left is not only chambered, but provided with tapered prints at both ends. The large diameter is 2¾ in. and the main body of the core 2 in. The difference in diameter between the various parts of the other cores is plainly shown.

A group of the machines which will be shown at Detroit can be seen in Fig. 3. In this illustration all of the dies have been drawn down through the tables. In the three machines at the left the vent rods have been drawn and are lying on the table, while in the three machines at the right the vent rods are in place. At the left of the central spindle of several of the machines can be seen the bushing, which is placed in the top of the die to form the upper tapered print. At the right of the central spindle on three of the machines can be seen the split core box or special die, which is

Fig. 3.—Wadsworth Core Machines with the Dies Drawn Down Through the Table.

introduced into the machine for forming chambered cores. The lower end of these die-boxes is tapered, so that when the outer casting or tube is drawn down through the table of the machine the dies fall away automatically, leaving the core standing upon the lower stool.

Fig. 4 shows the machines after the cores have been formed. The two cores at the left have tapered prints top and bottom, and in the illustration the lower tapered print is standing in the lower die. These cores are turned over on a former or drier, which is placed against the side of the core, while it is still in a vertical position. After the core is turned over, the bushing forming the lower tapered print and which also acts as a stool, is withdrawn from the sand. On the third machine from the left is shown a straight or parallel core. The three machines at the right all show chambered cores. These also have to be turned over on special driers or pans. Cores with tapered prints can also be dried on end, standing in the stool which forms the lower part of the die on the machine. These stools are exceedingly simple in construction and can be made in quantities on an automatic screw machine, so that they furnish very convenient core pans.

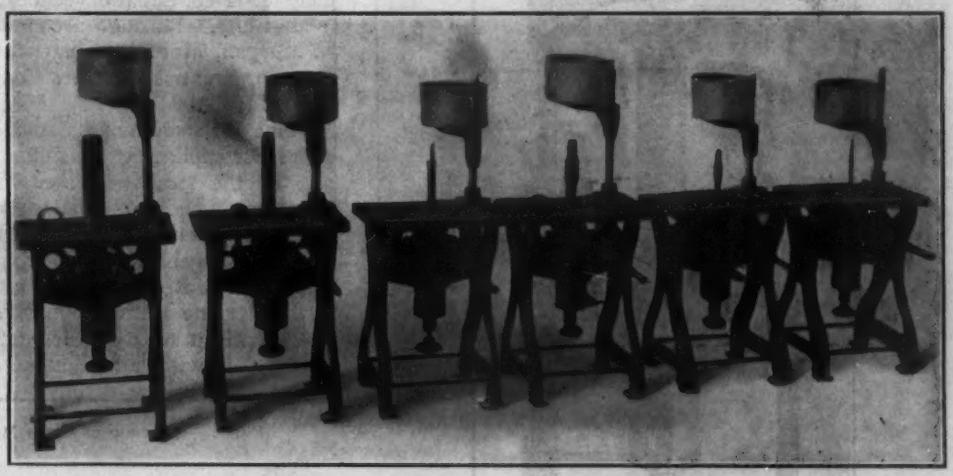


Fig. 4.—Machines After Cores Have Been Formed.

The machine with all of the dies in place, ready for ramming cores, is shown in Fig. 5, and it will be noticed that the vent rods project above each one of the dies, thus insuring a clear vent through the entire length of the core. The vent rods are drawn up out of the cores before the dies are stripped down. In the three machines shown at the left the stripping of the tube or die through the table of the machines leaves the upper thimble for forming the upper tapered print standing on the core. This is picked off by hand and is shown at the left of the machines in Fig. 4.

Fig. 5.—Machines with the Dies in Place to Ram Cores.

The mixtures for use on this machine have to be somewhat different from those employed in the screw type of core machine. In general, these mixtures approach more nearly those used in multiple core boxes in turning out work by hand. Any good grade of core oil can be used, as well as linseed oil, and a considerable portion of old core sand could be introduced into the mixture. It has been found that the best results are obtained when the batch is made in one of the Wadsworth mixing mills, as the grinding action of the rolls improves the bond in the sand. In his own practice Mr. Wadsworth is using a black core compound as the principal binder. For wetting down he is using glutrin, and he has experimented with several different grades of linseed oil and core oil, all of which have given very fair satisfaction.

A Reputable French Tool Steel

The Royal Metal Steel Company, A. Dreyfus, general manager, 17 Bridge street, New York, is the sole agent and distributer in the United States for the Chatillon, Commentry & Neuves-Maisons Steel Works, with general offices in Paris, France. Although the American agency has been established only 12 months, it has worked up an excellent business on its special motor car and tool steels. Its B F M brand is made on the Swedish iron basis and can be used for all kinds of forgings. It has been proved an excellent substitute for nickel steel and is very much easier to work. The company has among its customers several large machinery builders and some of the principal automobile manufacturers in this country, as well as a number of large railroad systems.

The Compagnie des Forges de Chatillon, Commentry & Neuves - Maisons is one of the oldest manufacturers in the world of war implements and railroad equipment. Its main works are located at St. Jacques, France. It operates in all 11 large and modern plants, employing about 1200 workmen. It owns the iron ore mines from which its raw material is obtained. Especially equipped laboratories enable the company to make thorough tests of all its products and its tool steels have gained a high reputation for their uniformity and superior quality.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, is now operating its new No. 8 lap weld mill which manufactures pipe up to 20 in. Two new butt weld mills have been completed and will be placed in operation later on.

A Small Sirocco Electric Fan Ventilator

One of the latest applications of the Sirocco turbine fan is a combination fan and air purifying device developed by the American Blower Company, Detroit, Mich. Fig. 1 shows the general construction of the purifier and Fig. 2 an installation for ventilating an office.

The device consists of a Sirocco standard turbine-type impeller wheel, 3 in. in diameter, driven by a

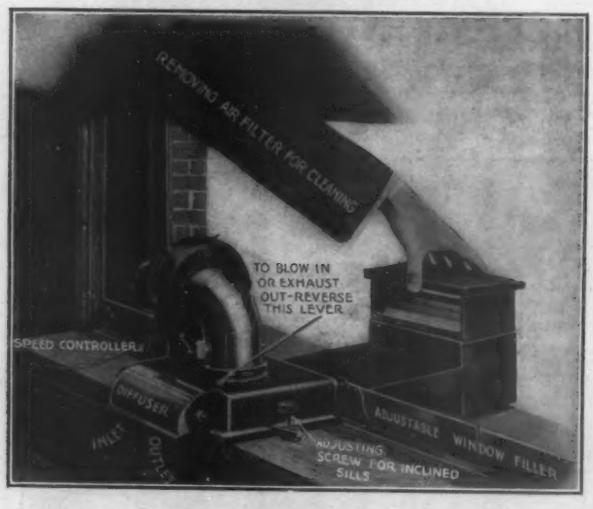


Fig. 1.—The Sirocco Fan and Air Purifier Made by the American Blower Company.

1/70-hp. electric motor. The current consumed by the motor is approximately one-quarter that required by an incandescent lamp of the ordinary type, and is supplied by screwing the attachment plug into the nearest electric light socket. In addition to the fan and the motor, the complete outfit consists of a reversing mechanism for changing the device into an exhaust

Fig. 2.—The Apparatus Installed on a Window Sill to Ventilate an Office.

fan, an adjustable outlet nozzle for Summer use and for changing the direction of the current of air, a speed controller, a dozen cloths for filtering the air, a window sash lock and a steel window filler. The sash lock is intended to prevent the window being raised from the outside after the outfit is in place, and the filler, which is adjustable to standard widths of sash, closes all but the opening through which the fan draws or discharges air. The apparatus will supply 5000 cu. ft. of fresh filtered air every hour, diffusing it throughout the room, or in any direction, or deflecting it through a radiator in winter, so that the air may be heated before circulating through the room.

New Trade Schools at Worcester

Half-Time and Continuation Schools Established Through Efforts of Metal Trades Association

The Worcester, Mass., Branch National Metal Trades Association has accomplished the establishment of a continuation school and a half-time school in that city. Through a committee consisting of Paul B. Morgan, Morgan Construction Company, Albert E. Newton, Prentice Brothers Company, and Clarence W. Hobbs, Hobbs Mfg. Company, the association has been working for some months on the plan and has succeeded in accomplishing its fulfilment with the co-operation of the local school committee and of the new Worcester School of Trades, which is the name given the local industrial school. The half-time school will follow the general plan as adopted in Cincinnati, Fitchburg, Mass., and other cities. The students will work alternate weeks in machine shops and the other weeks will pursue a curriculum of studies in the high schools. It will be a four years course and the shop work will continue through all the terms instead of three of the four years which is the rule in some other places.

The committee holds that the shop instruction is too important to be curtailed. It is believed that this school will not conflict with the School of Trades, though, of course, the efforts of the two institutions will be along parallel lines. The students of the half-time school will become indentured apprentices, their contracts being made with the manufacturers in whose shops they are to be trained. They will receive pay for their industrial work on an ascending scale, with an advance each six months. A deposit of $50 will be required of them to insure the fulfilment of their agreements. In other words, they are apprentices in the usual sense while they are in the shop, but in alternate weeks they are students of the high school pursuing a special course. The first class of 50 boys will begin the course in September. The curriculum follows:

First year: Hours, 5 English, 5 mathematics (shop arithmetic, algebra), 3 mechanics, 4 civics and hygiene, 5 drawing, free-hand and mechanical.

Second year: Hours, 5 English, 4 mathematics (shop arithmetic and algebra), 8 mechanics and physics, 8 drawing, free-hand and mechanical.

Third year: Hours, 4 English, 5 geometry, 3 physics and chemistry, 3 commercial geography and business methods, 7 drawing (free-hand and mechanical), 3 mechanics.

Fourth year: Hours, 4 English, 5 mathematics, 4 machines, 4 drawing, 4 physics, 4 civics and hygiene.

The continuation school will probably be conducted in conjunction with the School of Trades. There is nothing new in this course. Manufacturers will give to such employees as show promise a half day each week which will be devoted to class-room work under skilled instructors at the trade school, the men's wages going on as if they were in the shop.

The LaBelle Iron Works, Steubenville, Ohio, has opened a district sales agency in Chicago, with offices in the new Peoples Gas Building, Adams street and Michigan avenue. W. B. Higgins, assistant secretary of the company will be temporarily in charge, and Robert Bruce, who has been appointed manager of sales, will assume his duties about June 15.

The Chicago Incinerator

A Device for Destroying Rubbish Which Cannot Be Burned Under a Boiler

The Chicago incinerator shown in the illustrations, while designed primarily for the sanitary destruction of garbage and other refuse matter in hospitals, hotels, residences, &c., has an interest for certain industries, in that it will destroy such refuse as cannot, because of the presence of chemicals, be safely used under power boilers. Its purpose is to destroy everything that can be consumed by fire, and it is manufactured by the Incinerator Company of America, 124 Lexington avenue, New York. The idea of the invention, which originated with James B. Ricketts of Ricketts & Bermingham, Inc., Boston, Mass., the New England company, who, in conjunction with O. M. Shannon, the president of the New York company, developed it, was to secure an odorless, sanitary receptacle for and destroyer of refuse, thus eliminating the use of garbage barrels and garbage removal. This is secured in destruction, with practically no radiation of heat.

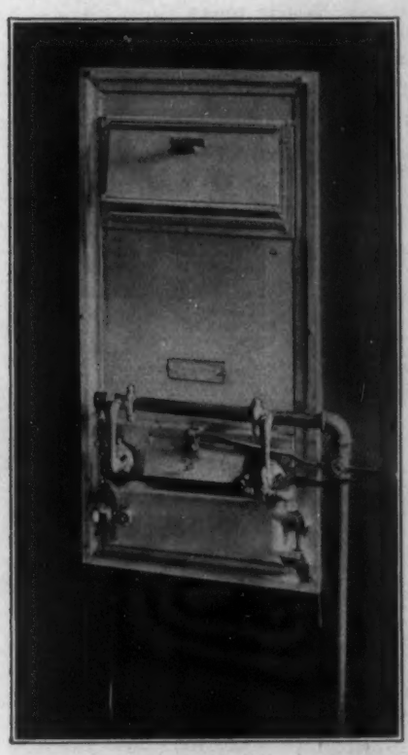


Fig. 1.—Wall Type.

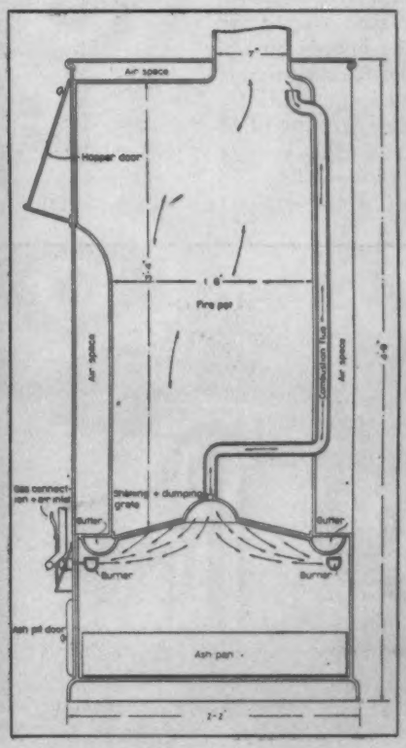


Fig. 2.—Sectional View.

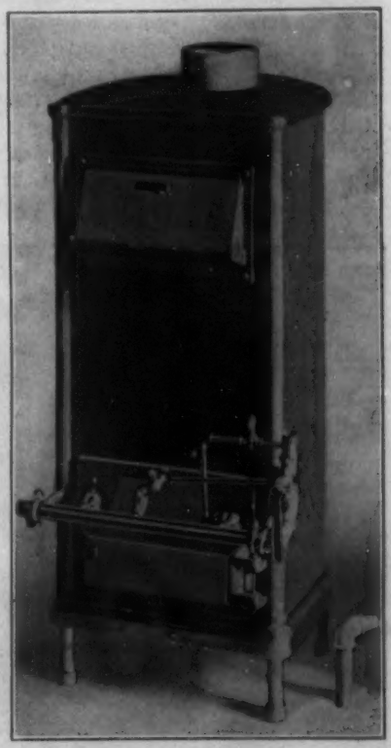


Fig. 3.—Portable Type.

The Chicago Refuse Incinerator Made by the Incinerator Company of America, New York City.

It is built in sizes to accommodate the needs of its users. In hospitals its purposes are evident. In such institutions as schoolhouses the disposal of sweepings and combustible waste is equally desirable.

The incinerator consists of a tightly closed receptacle, which constitutes a retort in which a very high degree of heat is generated by a special gas, gasoline or alcohol burner. The matter to be destroyed is permitted to accumulate in the receptacle until its quantity is sufficient to warrant burning. During this time the hopper door at the top, which receives the refuse, is kept closed by its own weight; the door at the burner, which provides the draft during operation, is automatically shut when the gas is shut off; while the ashpit door is opened only to remove the ashes.

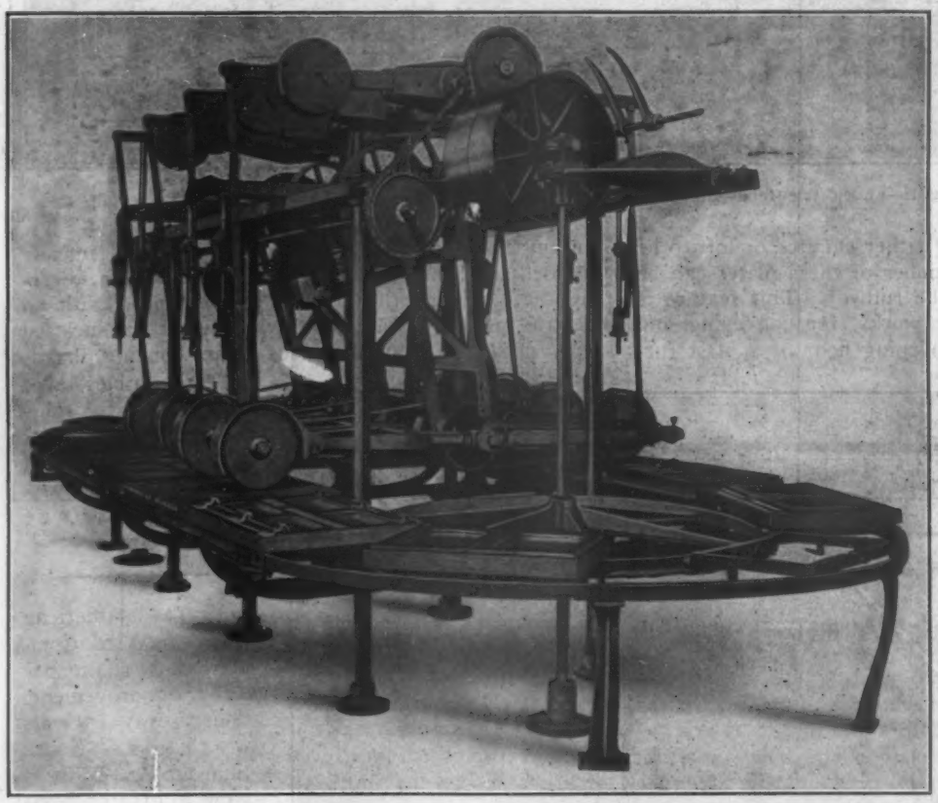
The device consists, as shown in Fig. 2, of a firepot, at the base of which is a grate draining into a gutter, beneath which is a burner, so placed that it cannot be affected by moisture from the charge, and is always accorded perfect combustion. At the apex of the grate is the combustion flue, which passes up through the mass and discharges near the top of the firepot. At the front of the incinerator is the mechanism for lighting the burner. A pilot light is ignited and the main supply turned on. The motion of a single lever turns on the gas to the burner and opens the draft door. Thus it is impossible to leave the door open when the burner is extinguished. A mixer regulates the combination of gas and air supply. The Bunsen flame is pulled by the draft toward the combustion flue, bringing a cone of fire against the grate. Tests have demonstrated that a temperature of from 1500 to 1800 degrees F. is generated at the base of the charge of refuse, while the upper opening of the flue discharges at a temperature of about 1200 degrees, which causes the gases of combustion of the mass to consume themselves, a factor which has much to do with the odorless discharge from the incinerator into the chimney flue. The heat is intense enough to fuse broken glass, which clings to the grate, but is easily dislodged from it in the shaking, provision being made for this function. Under ordinary conditions of draft, garbage is consumed to a dry ash in an hour. With better draft, or with more combustible substances, the time is correspondingly less. Ashes of about 1 per cent. carbon are left in the ashpit. The moisture from garbage is caught in grooves in the grate bars and runs into the gutters. The small amount that may find its way into the pit quickly evaporates. Bones are reduced to their mineral constituents.

The incinerator is built in two types. The wall type, Fig. 1, as the name implies, is set into the wall, the portable, Fig. 3, stands out like a stove. It is only necessary that there be a chimney to discharge into. Several sizes are furnished in each style. In the wall type, No. 1, holding one-half bushel, is 11 in. wide, 27 in. high and 14 in. deep; No. 2, holding one bushel, 16 in. wide, 34 in. high and 16 in. deep, and No. 3, holding one barrel, 26 in. wide, 4 ft. 9 in. high and 26 in. deep. Of the portable type, No. 1, holding one-half bushel, is 11 in. wide, 34 in. high and 14 in. deep; No. 2, holding one bushel, 16 in. wide, 40 in. high and 16 in. deep, and No. 3, holding one barrel, 26 in. wide, 4 ft. 9 in. high and 26 in. deep.

An Excelsior Automatic Polishing Machine

The eight-wheel automatic polishing machine illustrated was designed by the Excelsior Tool & Machine Company, East St. Louis, Ill., for polishing and grinding flat or semiflat castings, such as stove tops and trimmings or hardware of any kind having no abrupt irregularities. Many advantages are said to be obtained by having the wheels on both sides of the machine in the quality of the work produced, power required, floor space, and the convenience of having the work returned to the starting point, or if the work can be finished with half the number of wheels, double capacity is secured by removing and refilling the carriers at both ends. If necessary the work can pass through the machine several times without any attention. There is very little time lost while the work passes from one side to the other as the trucks travel at five times the speed of the regular feed around the curve. There is no space between the boards on the straight runs, while an endless roller chain carries them along, but after they are released automatically at the ends of the straight runs they are whisked around the curves by large ratchet wheels that engage dogs projecting downward from the carriers.

This automatic polishing machine is self-contained and provided with adjustments, self-oiling bearings and dustproof collars. It is constructed so that the downward limit of the wheels, as well as the pressure of the wheels on the work, may be adjusted while the machine is in operation. As will be noticed, the machine is built on the double-arm principle to polish on both sides. This feature was adopted to make it rigid, balancing all movable parts, and to return the finished work to the starting point, so that one operator may take care of one or more machines readily. The use of follower boards is obviated by a board on which the castings are fastened. The trucks are left in the machine and are carried around or can be removed at either end of the machine. The roughing wheels are placed on one side of the machine to throw the dust away from the working parts, and on the other side the finishing wheels are placed. Each wheel is provided with an adjustable dust hood. The trucks are made of malleable iron in one piece, and have four wheels. Skilled labor is not required to operate this machine. It is claimed to effect a saving of 50 per cent. in labor and power. This machine is also made in 4, 12 and 16 wheel models.



The No. 28 Flat Casting Polishing Machine Built by the Excelsior Tool & Machine Company, East St. Louis, Ill.

Steel Production in France in 1909

The statistics of the Comite des Forges de France show that the total production of steel ingots in France in 1909 was 3,034,571 metric tons, against 2,727,617 tons in 1908, and 2,766,773 tons in 1907. The Maurthe et Moselle produced 47 4-10 per cent. of the total last year and the Nord 22 8-10 per cent. The production of the various kinds of steel in the past five years is given in the following table in metric tons:

	Bessemer ingots.		Open hearth	Crucible and electric	Total
	Acid.	Basic.	ingots.	ingots.	ingots.
1905.....	119,526	1,345,511	775,247	.....	2,240,284
1906.....	108,037	1,428,525	834,815	.....	2,371,377
1907.....	78,771	1,669,757	1,001,463	16,782	2,766,773
1908.....	77,581	1,632,296	1,002,798	14,951	2,727,617
1909.....	76,981	1,853,327	1,080,912	23,351	3,034,571

It will be seen that there has been an advance in each description of steel in recent years except in acid Bessemer. The consumption of pig iron in steel manufacture last year amounted to 2,111,095 tons of basic, 142,903 tons of Bessemer, and 127,196 tons of ferromanganese, ferrosilicon, &c. Other pig iron used in steel manufacture amounted to 231,427 tons and scrap and ore were 810,778 tons and 17,887 tons respectively.

The production of blooms and billets was 1,601,427 tons (1,057,952 tons of blooms and 543,475 tons of billets), as against 1,315,999 tons in 1908. The total of 384,305 tons of billets from Bessemer converters includes 16,500 tons produced by the duplex process. The output of finished steel products amounted to 2,043,022 tons in 1909, against 1,894,022 tons in 1908, and 1,860,308 tons in 1907. The total of rails for the last year was 354,631 tons; of structural shapes, 428,586 tons; of merchant bars, 534,299 tons; of plates and sheets, 364,630 tons; of wire rods, 110,926 tons, and of tin plates, 39,713 tons.

The Warwick Iron & Steel Company, Pottstown, Pa., will blow out its No. 1 furnace at an early date to make necessary repairs, for which about six weeks will be required. The company has completed plans for erecting an additional stack which will probably be known as Furnace A, and will be used as an emergency furnace. It will be operated during the enforced idleness of either the No. 1 or No. 2 furnace, with the mechanical equipment used for those stacks.

The Johnston & Jennings Double Hook Trolley Hoist

The accompanying engravings illustrate an electric hoist with two hook blocks operating in unison and driven by the same motor, built by the Johnston & Jennings Company, Cleveland, Ohio. This model is said to be superior to the single hook block hoist for handling a great variety of material on account of its being able to pick up its load and carry it straight and level without the sway and unevenness that is always more or less present with the single hook hoist. This feature permits making the supports for the track narrow, as will be noticed from the views, of which Fig. 1 shows the hoist in use in a steel plant, and Fig. 2, in a bolt works, and does not require a wide operating space in the storage room of the shop.

When handling small material in trucks or pans, the load is placed on steel plates on the floor under the overhead track. After these are loaded the trolley picks them up and conveys them to their destination, where they are either emptied or left to be used as required. Any number of these plates can be used along the length of the runway. This feature is valuable for bolt and nut works, for conveying and hoisting material to the charging floor of a blast furnace cupola, and for transporting barrels, boxes or kegs to the storehouse or shipping room. In handling heavy or bulky material either one or both hooks can be used, as each is able to lift the full capacity of the hoist.

The hoist is furnished with a seat, as shown in the illustrations, or with a cage, as may be desired. When the seat is used, the operator makes the hitches and thus saves the cost of a helper. Three sizes of hoist, having capacities of 2, 4 and 6 tons, respectively, are built and the construction is rigid and solid. The truck wheel frames are made of steel castings and interlock with the frame, provision being made for swiveling around curves in the track. The trolley will operate on a maximum grade of 3½ per cent., a foot or hand brake being used to control the speed on down grades.

Fig. 1.—An Electric Hoist with Two Hooks Made by the Johnston & Jennings Company, Cleveland, Ohio.

An automatic load or mechanical brake that is entirely inclosed and runs in a bath of oil is provided for lowering the load, and the hoist is also equipped with an electric brake on the motor, which is of the inclosed type, used for crane service. The hoisting drums are 30 times the diameter of the rope. The gears are steel castings, with cut teeth, and all bearings have bronze bushings.

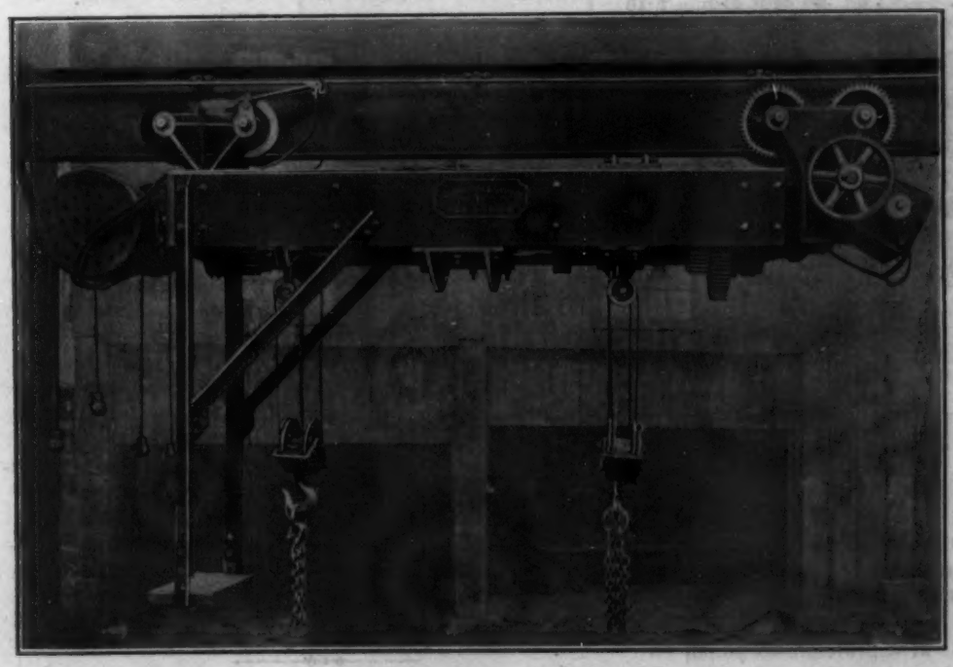


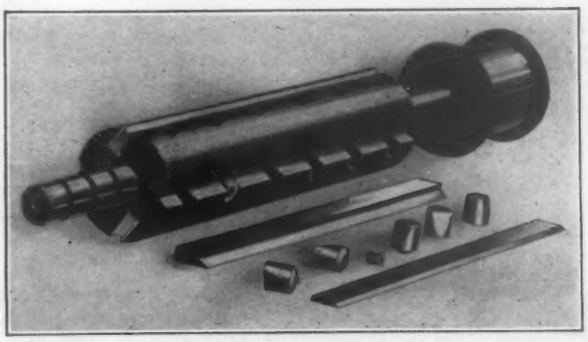
Fig. 2.—View from the Side of One of the Johnston & Jennings Double Hook Trolley Hoists.

The American Steel & Wire Company has a number of improvements under way at its works at South Sharon, Pa. With a view to greater flexibility in operation of the continuous billet mill, heating furnaces are being installed for reheating the billets rolled on that mill, which are approximately 1¼ in. square by 30 ft. long, these billets being used in the rod mill. Additional wire drawing equipment is being installed, utilizing for this purpose the end of the wire mill building, now occupied by the storehouse, and erecting in a new location a separate storehouse building.

The Crescent Round Safety Jointer Head

Many woodworking machines by their very nature are more or less dangerous to operate. The working parts cannot often be inclosed, and it remains, therefore, to make the extent of the injury which they are capable of inflicting as small as possible. A jointer equipped with the ordinary type of head, which is roughly square in cross section, is likely to cut off the fingers or a part of the hand if the latter comes in contact with it, but by the present approved construction wherein the space between the cutter knives is filled to a circular section nearly equal to the diameter of the cutting edges, the worst that can happen the operator by contact with the knives is a slight flesh wound. A round or safety head of the type just mentioned, as made by the Crescent Machine Company, Leetonia, Ohio, for use on its jointers, is shown in the accompanying illustration.

As may be seen, a thin, narrow knife is used, held in place by a heavy steel throat piece, clamped firmly in position by a number of key plugs placed at intervals in sockets drilled into the body of the head. These key plugs are cylindrical, with a flat plate milled on one side, making them wedged shaped. A hollow set screw passes through the center of the key plug, and bears against the bottom of the socket, so as to thrust the key plug outward on its taper, causing it to bind tightly and evenly against the throat piece and so hold the knife very firmly over its entire width. A slight tightening of the screws with the combined wedging action of the key plugs is sufficient to hold the knife firmly. No tensile strain exists in the screws as in the usual forms of construction, which removes the danger of accident arising from broken screws. The small end of each key plug is turned outward, so that a plug could not fly out even if the screw were loosened, but would tend to tighten from centrifugal force. Neither can a throat piece fly out, for it has a tongue along its lower edge setting into a groove milled in the head. The knife is firmly supported by the solid metal of the head on its entire back surface close to the cutting line. The space in front of the knife being filled by the throat piece leaves no chance for chips to drive under



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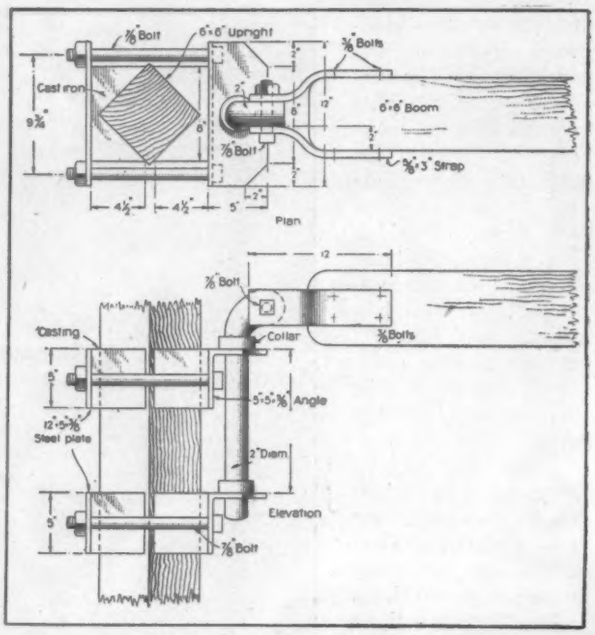
The Aberthaw Derrick Boom Seat

The accompanying illustration shows the boom seat of a derrick attached to an upright of a construction elevator tower, designed and used by the Aberthaw Construction Company, Boston, Mass. The elevator was used for hoisting concrete and the derrick for handling reinforcing steel and forms to the various floors of a reinforced concrete building. The seat con-



Detail of the Fastening of the Boom to the Upright of a Derrick as Used by the Aberthaw Construction Company, Boston, Mass.

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To Investigate Labor Conditions at Steel Works

A resolution introduced by Senator Borah of Idaho, passed in the United States Senate, May 19, directs the Commissioner of Labor to make an investigation of labor conditions in the steel industry in the United States. The inquiry is to take in wages paid, hours of labor, overtime, accidents and other matters connected with steel works operations.

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New Tools and Appliances

Automatic Multispindle Lathe.—In response to a demand for a larger multispindle automatic machine than the ¾-in. and 1¼-in. sizes which were illustrated and described in *The Iron Age*, January 30, 1908, the Windsor Machine Company, Windsor, Vt., has designed and built a new size of its multispindle automatic lathe. The new machine has a capacity for stock 2¼ in. diameter by 7½ in. long.

Sizing Blocks.—The Ellis Company, 42 Church street, New Haven, Conn., has brought out a new type of sizing block which is designed for machinists' use where it is desired to secure accurate and quick measurements. The device is intended to take the place of the old-fashioned model where the measurement was obtained by placing one block on top of the other. This device can be used for obtaining measurements in lathe, planer and shaper work. It is adjusted with a micrometer screw and is graduated so that measurements of 0.001 in. can be obtained. The blocks are made in two sizes, one for measuring dimensions from ½ to ⅞ in., and the other having a range from 1 to 1⅞ in.

A Pattern Shop Variety Saw.—The B. M. Root Company, York, Pa., has built a new model of variety saw designed especially for use in pattern making shops. One of the novel features of this tool is that the countershaft is mounted on an extension of the base whose upper surface is planed to fit the planed base of the machine proper. This construction enables an endless belt to be used on the countershaft and mandrel pulleys as the machine is adjustable on the base by a screw and instead of lifting the table the mandrel bearings are mounted on a slide and the saw is raised or lowered by a hand wheel while the table is maintained at a constant hight. The table may be tilted to an angle slightly greater than 45 deg. by a worm and worm gear located under it. It is graduated for accurate setting and cross-cut, mitering and rip gauges are provided. These gauges can be used on either side of the saw, grooves being provided for that purpose. For ordinary work they can be adjusted instantly to the approximate position while for accurate work a screw micrometer gauge is furnished. Provision is made on the side of the machine for adding a foot boring attachment fitted with adjustable stops. The machine is regularly equipped with a 14-in. saw which will rip or cross cut material 4 in. thick, but if desired larger sizes of saw up to 18 in. can be furnished.

A New Double Back Geared Lathe.—The Prentice Bros. Company, Worcester, Mass., has recently brought out a new double back geared lathe equipped with quick change gear mechanism giving 36 changes for screw cutting from 1 to 16 threads per in. The spindle is of high carbon steel and the bearings of hard bronze. The end thrust is taken by a step bolted to the end of the headstock and entirely independent of the spindle. The tailstock is of the offset type thus permitting the compound rest to be set parallel with the bed. An automatic stop is provided for the feed which disengages the clutch on the feed rod. If desired a taper attachment can be furnished at slight extra cost.

Micrometer Plug Gauge.—The Nash Engineering Company, 248 Gates avenue, Brooklyn, N. Y., has brought out a handy little tool for measuring small holes and slots with the same degree of accuracy as the ordinary outside micrometer will measure external diameters. It is said that this instrument is so sensitive that roughness in apparently smooth holes can be readily detected and measured. It is almost as rigid as an ordinary plug gauge and possesses the additional advantage that intermediate sizes can be measured accurately. The instrument consists of three principal parts, a body, a taper spindle and a graduated barrel. The body is split at one end to allow expanding it by screwing in the taper spindle. The exact amount of this enlargement is measured by the graduated dial mounted on and locked by a set screw to the other end of the spindle. The taper on the spindle wedges out the split part of the body in proportion to the amount the spindle is screwed in and one complete revolution of the spindle changes the diameter of the end 0.01 in. The barrel is graduated in ten divisions which are further graduated with five subdivisions, each representing 0.0002 in. and by estimating between divisions it is possible to read the instrument to 0.0001 in.

Heavy Duty Radial Drill.—A group of radial drills designed to drive high speed drills to the limit of their capacity has been placed on the market by Edwin Harrington Son & Co., Inc., Seventeenth and Callowhill streets, Philadelphia, Pa. In the design of this machine special attention was given to the distribution of metal to prevent deflection under heavy load and to group all the operating levers within easy reach of the operator. With the former object in view the base, column and arm have been built very strong and are reinforced. The drill is driven from a variable speed motor connected by belt to the top shaft. Positive tooth clutches are provided for reversing the drive and engaging the back gears both of which are operated by levers in convenient locations. Speed variation is obtained through a drum type controller mounted on the column. Two sizes of drills are built with 5 and 6 ft. arms respectively.

Relieving Attachment for Lathes.—The Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, has built a new type of relieving attachment for use with its patent head lathes whereby either straight or taper work with any number of flutes from 3 to 16 inclusive may be relieved. A special rest is furnished with this attachment, but if it is desired a compound rest may be substituted for turning, but the compound rest cannot be used with the relieving attachment. This attachment is built in four sizes for use with the builder's 14, 16, 18 and 20 in. lathes.

A Portable Cylinder Boring Bar.—Joseph T. Ryerson & Son, Chicago, Ill., has added a portable boring bar designed for boring locomotive cylinders to this line of machinery. This bar can also be used for boring cylinders of stationary engines, steam hammers and air hoists, and other work of a similar character. The old star feed has been replaced with a positive gear feed which gives a continuous feeding movement to the cutting tool and results in a smooth cut as the tool does not dig into the metal. The tool head is designed to permit the use of straight boring tools which do not chatter like the bent tools which had to be used with some types of tool heads. Two sizes of bars are made, one will handle cylinders from 9¾ to 30 in. in diameter and 44 in. long, while the other will bore diameters ranging from 20 to 50 in. and 35 in. long. Special machines can, however, be furnished for boring cylinders of any length. The machines can be arranged for either pulley drive, direct gear, or with a Morse taper shank for operation with air or electric drills.

Storage Battery Truck.—The Atlas Car & Mfg. Company, Cleveland, Ohio, is placing on the market a new storage battery truck for rolling mills, to be used in transferring blooms, billets and sheets from one pass to another. The trucks will be built in capacities ranging from 10 to 50 tons.

A Pipe Coupling Reaming Machine.—A pipe coupling or socket reaming machine has been recently brought out by the Taylor-Wilson Mfg. Company, McKees Rocks, Pa., for handling couplings of a larger size than any machine previously built by this company. While the coupling is being operated on, it is held in position by a chuck composed of a stationary and a movable gripper. The latter is actuated by a spring which compensates for variation in diameter of the couplings and when the machine is once set for couplings of any particular size no further adjustment is required until a change of size is made. The operator simply places the coupling in position to be gripped by the chuck and from that time until it is delivered into a receptacle after it has been reamed, the operations are entirely automatic. The machine is of substantial construction and is self-contained; all gears are protected by guards.

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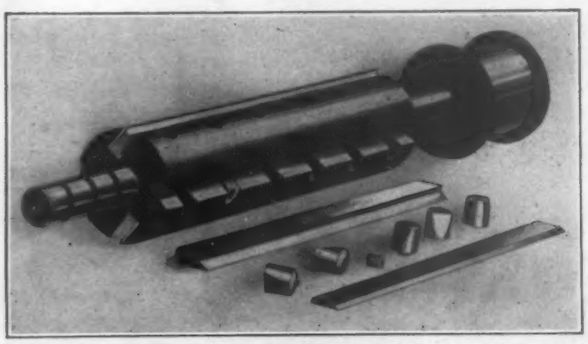

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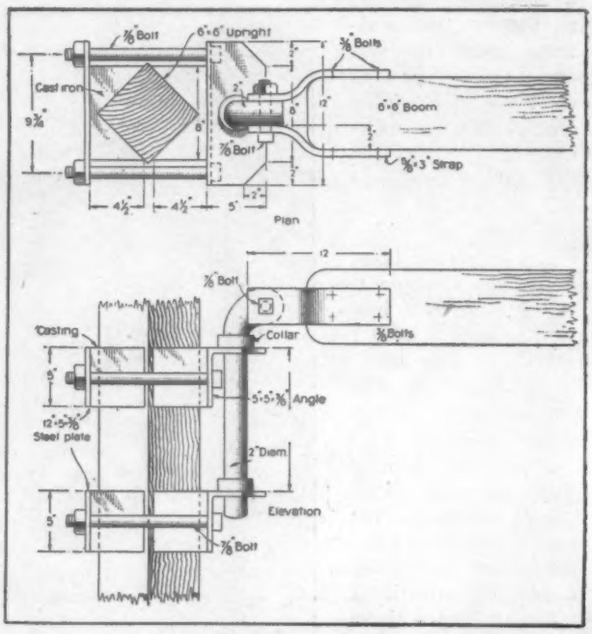

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Arthur E. Holder, legislative agent of the American Federation of Labor, appeared before the Senate Committee on Public Health and National Quarantine at Washington, May 19, in connection with the Owen Bill providing for the creation of a department of Labor and Health. He made several strong assertions concerning conditions at the plants of the Pressed Steel Car Company, Pittsburgh, Pa., and the Bethlehem Steel Company, South Bethlehem, Pa. His statement that one manufacturing concern in Ohio was reported to have "killed" 1200 men in nine years was challenged by Senator Smoot, and the labor representative thereupon said that he had no first hand information concerning the matter.

New Tools and Appliances

Automatic Multispindle Lathe.—In response to a demand for a larger multispindle automatic machine than the ¾-in. and 1¼-in. sizes which were illustrated and described in *The Iron Age*, January 30, 1908, the Windsor Machine Company, Windsor, Vt., has designed and built a new size of its multispindle automatic lathe. The new machine has a capacity for stock 2¼ in. diameter by 7½ in. long.

Sizing Blocks.—The Ellis Company, 42 Church street, New Haven, Conn., has brought out a new type of sizing block which is designed for machinists' use where it is desired to secure accurate and quick measurements. The device is intended to take the place of the old-fashioned model where the measurement was obtained by placing one block on top of the other. This device can be used for obtaining measurements in lathe, planer and shaper work. It is adjusted with a micrometer screw and is graduated so that measurements of 0.001 in. can be obtained. The blocks are made in two sizes, one for measuring dimensions from ½ to ⅞ in., and the other having a range from 1 to 1⅞ in.

A Pattern Shop Variety Saw.—The B. M. Root Company, York, Pa., has built a new model of variety saw designed especially for use in pattern making shops. One of the novel features of this tool is that the countershaft is mounted on an extension of the base whose upper surface is planed to fit the planed base of the machine proper. This construction enables an endless belt to be used on the countershaft and mandrel pulleys as the machine is adjustable on the base by a screw and instead of lifting the table the mandrel bearings are mounted on a slide and the saw is raised or lowered by a hand wheel while the table is maintained at a constant hight. The table may be tilted to an angle slightly greater than 45 deg. by a worm and worm gear located under it. It is graduated for accurate setting and cross-cut, mitering and rip gauges are provided. These gauges can be used on either side of the saw, grooves being provided for that purpose. For ordinary work they can be adjusted instantly to the approximate position while for accurate work a screw micrometer gauge is furnished. Provision is made on the side of the machine for adding a foot boring attachment fitted with adjustable stops. The machine is regularly equipped with a 14-in. saw which will rip or cross cut material 4 in. thick, but if desired larger sizes of saw up to 18 in. can be furnished.

A New Double Back Geared Lathe.—The Prentice Bros. Company, Worcester, Mass., has recently brought out a new double back geared lathe equipped with quick change gear mechanism giving 36 changes for screw cutting from 1 to 16 threads per in. The spindle is of high carbon steel and the bearings of hard bronze. The end thrust is taken by a step bolted to the end of the headstock and entirely independent of the spindle. The tailstock is of the offset type thus permitting the compound rest to be set parallel with the bed. An automatic stop is provided for the feed which disengages the clutch on the feed rod. If desired a taper attachment can be furnished at slight extra cost.

Micrometer Plug Gauge.—The Nash Engineering Company, 248 Gates avenue, Brooklyn, N. Y., has brought out a handy little tool for measuring small holes and slots with the same degree of accuracy as the ordinary outside micrometer will measure external diameters. It is said that this instrument is so sensitive that roughness in apparently smooth holes can be readily detected and measured. It is almost as rigid as an ordinary plug gauge and possesses the additional advantage that intermediate sizes can be measured accurately. The instrument consists of three principal parts, a body, a taper spindle and a graduated barrel. The body is split at one end to allow expanding it by screwing in the taper spindle. The exact amount of this enlargement is measured by the graduated dial mounted on and locked by a set screw to the other end of the spindle. The taper on the spindle wedges out the split part of the body in proportion to the amount the spindle is screwed in and one complete revolution of the spindle changes the diameter of the end 0.01 in. The barrel is graduated in ten divisions which are further graduated with five subdivisions, each representing 0.0002 in. and by estimating between divisions it is possible to read the instrument to 0.0001 in.

Heavy Duty Radial Drill.—A group of radial drills designed to drive high speed drills to the limit of their capacity has been placed on the market by Edwin Harrington Son & Co., Inc., Seventeenth and Callowhill streets, Philadelphia, Pa. In the design of this machine special attention was given to the distribution of metal to prevent deflection under heavy load and to group all the operating levers within easy reach of the operator. With the former object in view the base, column and arm have been built very strong and are reinforced. The drill is driven from a variable speed motor connected by belt to the top shaft. Positive tooth clutches are provided for reversing the drive and engaging the back gears both of which are operated by levers in convenient locations. Speed variation is obtained through a drum type controller mounted on the column. Two sizes of drills are built with 5 and 6 ft. arms respectively.

Relieving Attachment for Lathes.—The Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, has built a new type of relieving attachment for use with its patent head lathes whereby either straight or taper work with any number of flutes from 3 to 16 inclusive may be relieved. A special rest is furnished with this attachment, but if it is desired a compound rest may be substituted for turning, but the compound rest cannot be used with the relieving attachment. This attachment is built in four sizes for use with the builder's 14, 16, 18 and 20 in. lathes.

A Portable Cylinder Boring Bar.—Joseph T. Ryerson & Son, Chicago, Ill., has added a portable boring bar designed for boring locomotive cylinders to this line of machinery. This bar can also be used for boring cylinders of stationary engines, steam hammers and air hoists, and other work of a similar character. The old star feed has been replaced with a positive gear feed which gives a continuous feeding movement to the cutting tool and results in a smooth cut as the tool does not dig into the metal. The tool head is designed to permit the use of straight boring tools which do not chatter like the bent tools which had to be used with some types of tool heads. Two sizes of bars are made, one will handle cylinders from 9¾ to 30 in. in diameter and 44 in. long, while the other will bore diameters ranging from 20 to 50 in. and 35 in. long. Special machines can, however, be furnished for boring cylinders of any length. The machines can be arranged for either pulley drive, direct gear, or with a Morse taper shank for operation with air or electric drills.

Storage Battery Truck.—The Atlas Car & Mfg. Company, Cleveland, Ohio, is placing on the market a new storage battery truck for rolling mills, to be used in transferring blooms, billets and sheets from one pass to another. The trucks will be built in capacities ranging from 10 to 50 tons.

A Pipe Coupling Reaming Machine.—A pipe coupling or socket reaming machine has been recently brought out by the Taylor-Wilson Mfg. Company, McKees Rocks, Pa., for handling couplings of a larger size than any machine previously built by this company. While the coupling is being operated on, it is held in position by a chuck composed of a stationary and a movable gripper. The latter is actuated by a spring which compensates for variation in diameter of the couplings and when the machine is once set for couplings of any particular size no further adjustment is required until a change of size is made. The operator simply places the coupling in position to be gripped by the chuck and from that time until it is delivered into a receptacle after it has been reamed, the operations are entirely automatic. The machine is of substantial construction and is self-contained; all gears are protected by guards.

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:

1 to 1¾ in. round and square; 1½ to 4 in. x ⅜ to 1 in.	₩ lb 1.90¢
1½ to 4 in. x ¼ to 5-16	₩ lb 2.10¢
Rods—¼ and 11-16 round and square	₩ lb 2.10¢

Angles:

	Cts ₩ lb
3 in. x ¼ in. and larger	2.10¢
3 in. x 5-16 in. and ¼ in.	2.35¢
1½ to 2½ in. x ¼ in.	2.20¢
1½ to 2½ in. x 5-16 in. and thicker	2.10¢
1 to 1¼ in. x 3-16 in.	2.20¢
1 to 1¼ x ⅛ in.	2.30¢
⅝ x ¼ in.	2.40¢
¾ x ¼ in.	2.50¢
⅝ x ⅛ in.	3.55¢
½ x 3-32 in.	4.35¢

Tees:

1 in.	2.65¢
1¼ in.	2.45¢
1½ to 2½ x ¼ in.	2.15¢
1½ to 2½ x 3-16 in.	2.35¢
3 in. and larger	2.15¢
Beams	2.10¢
Channels, 3 in. and larger	2.10¢
Bands—1½ to 6 x 3-16 to No. 8	2.35¢
"Burden's Best" Iron, base price	3.15¢
Burden's "H. B. & S." Iron, base price	2.95¢
Norway Bars	3.60¢

Merchant Steel from Store—

	per lb
Bessemer Machinery	1.90¢
Toe Calk, Tire and Sleigh Shoe	2.50@3.00¢
Best Cast Steel, base price in small lots	7¢

Sheets from Store—

	Black: One Pass, C.R Soft Steel.	R. G. Cleaned.
No. 16	₩ lb 2.90¢	3.00¢
Nos. 18 to 21	₩ lb 2.95¢	3.10¢
Nos. 22 and 24	₩ lb 3.05¢	3.20¢
No. 26	₩ lb 3.10¢	3.30¢
No. 28	₩ lb 3.20¢	3.50¢

Russia, Planished, &c.

Genuine Russia, according to assortment, ₩ lb 12 @14½¢

Patent Planished, W. Dewees Wood, ₩ lb A, 10¢; B, 9¢ net

Galvanized.

Nos. 11 to 16	₩ lb, 3.20¢
Nos. 22 to 24	₩ lb, 3.55¢
No. 26	₩ lb, 3.75¢
No. 28	₩ lb, 4.10¢

No. 20 and lighter 36 inches wide, 25¢ higher.

Genuine Iron Sheets—

Galvanized.

Nos. 22 and 24	₩ lb ..5.75¢
No. 26	₩ lb ..6.25¢
No. 28	₩ lb ..7.25¢

Corrugated Roofing—

2½ in. corrugated.	Painted	Galvd.
No. 24 ₩ 100 sq. ft.	$3.85	4.80
No. 26 ₩ 100 sq. ft.	2.95	4.00
No. 28 ₩ 100 sq. ft.	2.60	3.75

Tin Plates—

American Charcoal Plates (per box.)

"A.A.A." Charcoal: IC, 14 x 20	$6.35
IX, 14 x 20	7.60
A, Charcoal: IC, 14 x 20	$5.40
IX, 14 x 20	6.50

American Coke Plates—Bessemer—

IC, 14 x 20 ..107 lb	$4.40
IX, 14 x 20	5.40

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating	$8.50
IX, 20 x 28 with an 8 lb. coating	10.50

Seamless Brass Tubes—

List November 13, 1908. Base price 18¢

Brass Tubes, Iron Pipe Sizes—

List November 13, 1908. Base price 18¢

Copper Tubes—

List November 13, 1908. Base price 22¢

Brazed Brass Tubes—

List August 1, 1908. 19½¢ ₩ lb

High Brass Rods—

List August 1, 1908. 14½¢ ₩ lb

Roll and Sheet Brass—

List August 1, 1908. 14½¢ ₩ lb

Brass Wire—

List August 1, 1908. 14½¢ ₩ lb

Copper Wire—

Base Price. Carload lots mill 14½¢

Copper Sheets—

Sheet Copper Hot Rolled, 16 oz (quantity lots) ₩ lb 18 ¢

Sheet Copper Cold Rolled, 1¢ ₩ lb advance over Hot Rolled.

Sheet Copper Polished 20 in. wide and under, 1¢ ₩ square foot.

Sheet Copper Polished over 20 in. wide, 2¢ ₩ square foot.

Planished Copper, 1¢ ₩ square foot more than rollished.

METALS—

Tin—

Straits Pig ₩ lb 34½@35¢

Copper—

Lake Ingot	₩ lb 14¾@15 ¢
Electrolytic	₩ lb 14¾@15 ¢
Casting	₩ lb 14¾@14½¢

Spelter—

Western ₩ lb 6½@6¾¢

Zinc.

No 9, base, casks ₩ lb 8 ¢ | Open ₩ lb 8½¢

Lead.

American Pig	₩ lb 5 @5¼¢
Bar	₩ lb 6⅜@6½¢

Solder.

½ & ½, guaranteed	₩ lb 22¼@22½¢
No. 1	₩ lb 18¾@19¼¢
Refined	₩ lb 17¼@17¾¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Cookson	₩ lb ..@10¢
Halletts	@10¢
Other Brands	@9½¢

Bismuth—

Per. lb $2.00@$2.25

Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting 34¢

Rods & Wire Base Price 31¢

Sheets Base Price 33¢

Old Metals.

Dealers' Purchasing Prices Paid in New York

	Cents
Copper, Heavy cut and crucible	₩ lb 10.75@11.00
Copper, Heavy and Wire	₩ lb 10.50@10.75
Copper, Light and Bottoms	₩ lb 9.50@ 9.75
Brass, Heavy	₩ lb 7.00@ 7.50
Brass, Light	₩ lb 5.70@ 6.00
Heavy Machine Composition	₩ lb 9.75@10.00
Clean Brass Turnings	₩ lb 7.00@ 7.25
Composition Turnings	₩ lb 8.00@ 8.25
Lead, Heavy	₩ lb ....@ 3.50
Lead, Tea	₩ lb .. .@ 3.25
Zinc Scrap	₩ lb ....@ 9.75